

TREASURY DEPARTMENT
UNITED STATES PUBLIC HEALTH SERVICE
HUGH S. CUMMING, SURGEON GENERAL

**MUNICIPAL ORDINANCES AND
REGULATIONS PERTAINING TO
PUBLIC HEALTH
1923-1926**

COMPILED BY
WILLIAM FOWLER, LL. B.
United States Public Health Service

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HUGH S. CUMMING, *Surgeon General*

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ASST. SURG. GEN. R. C. WILLIAMS, *Chief of Division*

The PUBLIC HEALTH REPORTS are issued weekly by the United States Public Health Service through its Division of Sanitary Reports and Statistics pursuant to acts of Congress approved February 15, 1893, and August 14, 1912.

They contain: (1) Current information of the prevalence and geographic distribution of preventable diseases in the United States in so far as data are obtainable, and of cholera, plague, smallpox, typhus fever, yellow fever, and other communicable diseases throughout the world. (2) Articles relating to the cause, prevention, or control of disease. (3) Other pertinent information regarding sanitation and the conservation of the public health.

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JOHN T. CLARK

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MUNICIPAL ORDINANCES AND REGULATIONS PERTAINING TO PUBLIC HEALTH

**ADOPTED DURING 1923-1926 BY CITIES OF THE UNITED STATES
HAVING A POPULATION OF OVER 10,000 IN 1920**

This volume is the tenth in the series of compilations of municipal ordinances and regulations pertaining to public health which have been issued by the Public Health Service. The publication of such compilations was commenced in 1910.

In this volume no attempt has been made to publish all the ordinances and regulations received from the various municipalities. The primary object has been to publish ordinances and regulations which might be useful to health officers and others who are called upon to draft health legislation.

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ANIMALS¹

BEAUMONT, TEX.

Dogs—Immunization Against Rabies—Regulation of Running at Large—Impounding and Destruction. (Ord. January 23, 1923)

SECTION 1. That it shall hereafter be unlawful for the owner or keeper of any dog to permit the same to run at large in the city of Beaumont unless said dog is immunized against rabies by the injection of antirabies vaccine by a registered graduate veterinarian under the direction of the director of sanitation, and under the conditions hereinafter provided. Any dog not properly tied or under leash during transportation shall be considered running at large.

SEC. 2. The owner or keeper of any dog immunized against rabies, as provided in section 1 of this ordinance, shall procure a written certificate of vaccination on forms to be provided by the director of sanitation giving an accurate description of the dog, the date of immunization, and the name and address of the owner of such dog, which certificate shall be signed by the veterinarian administering the vaccine; at any time after seven days subsequent to the date of vaccination of any dog upon presentation of the above certificate at the office of the director of sanitation, and payment of the fee hereinafter provided for, a metal tag will be issued bearing a number corresponding to the number placed on such certificate and with lettering showing immunization, which tag shall be attached to the collar of the dog for which it was issued and shall be worn in a conspicuous place on the collar at all times while such dog is running at large. The tag above required shall be designed and issued under the direction of the director of sanitation and shall be valid for one year after the date of vaccination of the dog to which issued and shall be nontransferable.

SEC. 3. A fee of \$2.50 shall be paid by every person procuring certificate of the immunization with tag for each dog, as required hereunder; this fee shall include the cost of the vaccine and the services of the city veterinarian when the immunization is performed by him.

Any owner of any dog immunized against rabies by a veterinarian other than the city veterinarian is hereby required to obtain from veterinarian immunizing his animal a written certificate containing name of owner, color, breed, and weight of dog immunized, together with kind and amount of vaccine used and date of administration. Upon presentation of these facts, together with a fee of 50 cents, to the director of sanitation, said director of sanitation shall issue owner a certificate of immunization and cause to be attached to collar of said animal a metal tag as described in section 2.

SEC. 4. After six months subsequent to the date of the final passage of this ordinance, all dogs immunized against rabies, as provided for in this ordinance, and wearing a collar with metal tag attached as herein required, shall be allowed to run at large after seven days subsequent to receiving such treatment and for a period of one year from the date of such immunization. No dog shall be permitted to run at large whether immunized against rabies or not during the period of six months subsequent to the date of the final passage of this ordinance.

SEC. 5. Any dog running at large in the city of Beaumont during the period of six months subsequent to the date of the final passage of this ordinance shall be taken up by the police and impounded in a place provided for that purpose, and after six months subsequent to the date of the final passage of this ordinance any dog running at large in the city of Beaumont not properly immunized against rabies and provided with collar to which is attached a metal tag as required in this ordinance, shall be taken up by the police and impounded in a place provided for that purpose.

¹See also Meat and meat-food products, p. 132; Milk and milk products, p. 164.

SEC. 6. The officer or person having charge of any dog impounded hereunder shall cause to be published one time in a newspaper of general circulation, on Monday of each week a list of all dogs taken up and impounded during the preceding week, giving description of each dog by size, color, age, and breed, as nearly as can be ascertained, with any other distinguishing marks or brands; such notice shall also state the date such dogs will be destroyed unless sooner redeemed by the payment of the fees and costs provided for in this ordinance.

SEC. 7. Any dog taken up and impounded hereunder shall be held for five days after the publication of the notice herein provided for and released to the owner or keeper thereof, or his or their agent, upon the payment of a fee of \$2 and the vaccination fee of \$2.50 required in section 3 hereof for the immunization of such dog against rabies, together with all costs of impounding and keeping said dog and the publication of the notice herein provided for. Upon the payment of the fees and costs above required, the city veterinarian shall, before such dog is released, cause the same to be properly immunized against rabies by the injection of antirabies vaccine, and no dog shall be released to the owner or keeper thereof unless properly immunized against rabies.

SEC. 8. Upon failure of the owner or keeper of any dog impounded hereunder to pay the costs prescribed in section 7 hereof within five days from the date of publication of the notice required in section 6, such dog shall immediately be destroyed.

SEC. 9. Any person who shall wilfully or negligently permit any dog owned or kept by such person to run at large in the city of Beaumont, except as provided for in this ordinance, shall be deemed guilty of a misdemeanor and upon conviction thereof shall be fined in any sum not exceeding \$100.

BIRMINGHAM, ALA.

Animals and Fowl—Keeping—Construction and Maintenance of Stables and Corrals—Disposal of Manure. (Ord. 1012-C, September 15, 1925)

SECTION 1. That all places and premises in the city of Birmingham and its police jurisdiction where horses, mules, cattle, hogs, dogs, or other animals or fowls are kept, harbored, or confined shall be kept clean, sanitary, and maintained in such a manner as will effectually prevent the reproduction or propagation in or about such places or premises of flies and that the presence on or about such places or premises of the live larvæ of flies under conditions which permit or favor growth or development shall be prima facie evidence of the reproduction or propagation of flies and of the keeping or maintaining of said place or premises used for such purposes in violation of this ordinance.

SEC. 2. That the Jefferson County Board of Health is hereby authorized and directed to make appropriate inspections and investigations of all places and premises used for or in connection with such purposes in the city of Birmingham and its police jurisdiction, and take such legal steps as may be found reasonably necessary for the enforcement of the provisions of this ordinance.

SEC. 3. That when used in this ordinance the following words or terms shall have the meaning assigned to them, as follows:

Stable.—The word or term "stable" shall be construed to mean an inclosure or other place having a roof or overhead covering, used for or in connection with the keeping, harboring, or confining of horses, mules, cattle, or hogs or any animals of the equine, bovine, or swine specie[s] or type, and having a water-tight base or floor made of cement or other nonabsorbing material, which is constructed and equipped in such a manner as to cause or permit the free and unobstructed drainage or flow of all liquids arising or accumulating thereon into a sanitary sewer, or a septic tank, or system of subsurface drainage, as hereinafter provided, so constructed as to provide for the sanitary disposal of the same, and said base or floor being otherwise constructed in such a manner as will prevent refuse, particles of food, or discharges from such animals while so kept, harbored, or confined, from falling on or soiling the earth in or about such stable: *Provided*, That the material used for the construction of the base or floor of a stable may include portions of wood when the aggregate of such portions does not exceed three-fourths of the total area of such base or floor and when each piece of such wood is embedded separately in cement or other nonabsorbing material and separated from each adjacent piece by cement or other nonabsorbing material at least 1 inch in thickness and which is continuous with and forms an integral part of such floor or base: *Provided, however*, Not exceeding three-fourths of the total area of the

floor or base of a stable constructed as provided in this ordinance may be additionally covered with hardwood when each piece of such wood is separated from each adjacent such piece a distance of not less than 1 inch and is removable.

Corral.—The word or term "corral" shall be construed to mean an inclosure, place, or premises other than a stable, which is used for or in connection with the confining, harboring, or keeping of one or more animals of the equine, bovine, or swine specie[s] or type and having a minimum area of 1000 square feet: *Provided, however,* That a minimum area corral may accommodate as many as 10 such animals, to every portion of which corral such animal or animals shall have free and unrestricted access, and for each additional such animal above said number, said corral shall be increased by 100 square feet.

SEC. 4. That when a stable as provided herein is not located within 200 feet of a sanitary sewer, the same may be connected to a septic tank or system of subsurface drainage so constructed as to provide for the sanitary disposal of drainage from said stable.

SEC. 5. That the base or floor and appliances used in connection therewith of each and every stable in the city of Birmingham and its police jurisdiction shall be cleaned at least once each day by the removal of manure and other solid material and by washing. All accumulations of manure and material soiled with excreta from said animals in or about stables and corrals in the city of Birmingham and its police jurisdiction shall be collected at least once each day and stored in substantial fly-tight containers and shall not be removed from the place or premises on which said stable or corral is located until every portion of the same has been in storage for a period of not less than two weeks unless to another place for the purpose of like storage for a total period of not less than two weeks. That sawdust, shavings, or other like material may be used as bedding on the floor or base of a stable or corral, and when occupied by such animal and not soiled, as stated above, the same shall be collected at least once each week and stored as provided in this section: *Provided,* That when accumulations of manure and other material in stables and corrals, being free of live fly larvae, are removed therefrom and thinly spread daily upon the surface of the ground or elsewhere in such a manner as to be and remain exposed to sunshine, or covered with soil at least 6 inches in depth within 24 hours after such collection, the storage of such manure and other material as provided herein shall not be required.

SEC. 6. That it shall be unlawful to keep, harbor, or confine in the city of Birmingham or its police jurisdiction any animal of the equine, bovine, or swine specie[s] or type except in a stable or corral as provided in this ordinance: *Provided however,* That the provisions of this section as to a stable shall not be held to apply to an inclosure or place already constructed or established in accordance with law, having a hard surfaced floor or base until after the expiration of five years, except as provided in section 7 hereof.

SEC. 7. That it shall be unlawful to keep, harbor, or confine in or about any place or premises any portion of which is within 100 feet of a dwelling, school, church, hospital, public building, public park, or public playground in the city of Birmingham or its police jurisdiction any animal of the equine, bovine, or swine specie[s] or type except in a stable as provided in this ordinance.

SEC. 8. It shall be unlawful in the city of Birmingham or its police jurisdiction to use for the purpose of confining, harboring, or keeping of any animal of the equine, bovine, or swine specie[s] or type, any building, structure, or place hereafter constructed or established, any portion of the floor or base of which is obscured from sunlight or sunshine by reason of overhead covering or roofing unless the same is constructed and equipped as a stable in accordance with the provisions of this ordinance.

SEC. 9. It shall be unlawful within the city of Birmingham or its police jurisdiction to confine, harbor, or keep on a lot, place, or premises, any animal or fowl which habitually, continuously, or intermittently makes or emits sounds or noises of such volume, nature, and extent as to be a public nuisance by reason of being obnoxious or annoying to the ordinary persons in that neighborhood.

SEC. 10. That it shall be unlawful to keep, store, or deposit on or about any place or premises in the city of Birmingham or its police jurisdiction, exposed to flies, any decomposable, decaying, or putrefactive material, either animal or vegetable in nature or origin, other than manure and other material as provided herein, except in a substantial, water-tight and fly-proof metallic container either made for or appropriate to be used for such purpose, so as to prevent access of flies to the same, or the reproduction or propagation of flies on or about the same.

SEC. 11. That each day's violation of this ordinance shall constitute a separate offense.

SEC. 12. That all ordinances or parts of ordinances in conflict herewith are hereby repealed.

SEC. 13. That if any section, clause, provision, or portion of this ordinance shall be held to be invalid or unconstitutional, such holding shall not affect any other section, clause, provision, or portion of this ordinance which is not in and of itself invalid or unconstitutional.

SEC. 14. That each and every violation of this ordinance shall, upon conviction, be punishable as provided in section 1936 of the Code of Alabama of 1923, provided that the minimum fine in each case shall be not less than \$5.

SEC. 15. That this ordinance shall go into effect at 12 o'clock, midnight, on December 31, 1925.

CINCINNATI, OHIO

Communicable Diseases of Animals—Reports of Cases. Rabies—Prevention of Spread—Confinement and Destruction of Animals—Reports of Dog Bites. (Reg. Bd. of H., January 13, 1926)

SECTION 1. The following communicable diseases of animals shall be reported to the department of health immediately upon the recognition of such disease by the owner or attending veterinarian or person having the diseased animal in his possession or control: Actinomycosis, anthrax, glanders, rabies, Texas fever, and tuberculosis.

SEC. 2. Every animal that has rabies or that shows symptoms of rabies, and every animal that has been bitten by another animal affected with rabies or has been otherwise exposed to such disease shall, by the person owning the same or having possession thereof, be at once confined in some secure place for such length of time as may be necessary for the purpose of determining whether such disease exists or showing that such exposure has not given such animal said disease and of avoiding all danger to life or health, and such person shall also, immediately upon discovering or learning any of the aforesaid facts, notify the department of health thereof and the place where such animal is confined.

Every animal which is mad or has rabies shall at once be killed by the owner or person having possession thereof, with such precautions as to prevent the spread of infection, and the body destroyed by incineration: *Provided, however*, If the diagnosis is questioned, suspected animals shall be isolated for a period of 10 days for observation and diagnosis.

SEC. 3. Should a dog bite any person, it shall be the duty of the owner or person having the dog in his possession or under his control, to notify the health department thereof and isolate or surrender such dog for inspection and observation by the health department or licensed veterinarian. If found to be rabid the dog shall be destroyed as defined in section 2.

SEC. 4. When the police or other person or authorities destroy an animal for any of the causes herein mentioned it shall be his or their duty to notify the health department immediately thereof and of the location of its body, so that the said body may be properly disposed of; and it shall be unlawful to remove any dog or animal to which these sections apply without an order from the health department.

SEC. 5. Any person violating the provisions of the foregoing regulations shall, upon conviction thereof, be fined not to exceed \$100 or imprisoned not to exceed 90 days, or both.

CLEVELAND, OHIO

Unmuzzled Dogs—Running at Large Prohibited—Impounding and Destruction. (Ord. 70640, July 20, 1925)

SECTION 1. That the Municipal Code of Cleveland of 1924 be, and the same is hereby, supplemented and amended by enacting three new sections to be known as sections 2911-1, 2911-2, and 2911-3, respectively, and to read as follows:

SEC. 2911-1. No unmuzzled dog shall be permitted at any time to be on a public highway, public park, public building, or other public place, except when held securely in leash by the owner thereof or other responsible person.

SEC. 2911-2. Whoever owning a dog permits it to run at large or to enter into a public highway, public park, public building, or other public place in violation of section 2911-1 shall be guilty of a misdemeanor, and upon conviction thereof

shall be fined not less than \$5 nor more than \$200 or imprisonment for not more than 60 days, or both, and shall stand committed until such fine be paid or sentence served, or until otherwise discharged by due process of law. Each day's violation shall constitute a separate offense. (Ord. No. 63961, passed May 26, 1924.)

Sec. 2911-3. It shall be the duty of the police officers of the city of Cleveland when any unmuzzled dog is found at large in the public highways, public parks, public buildings, or other public places in violation of section 2911-1, to take up and impound such dog in a city pound. No dog shall be released from pound to his owner until the cost of taking up, impounding, and keeping said dog is paid to the city, in an amount to be fixed by or under the authority of the director of public safety. Any dog unredeemed after five days from the time of being taken and impounded may be destroyed upon the order of the director of public safety, but if such dog have a license number an effort shall be made to locate the owner. The payment of charges for redeeming a dog from pound shall not be construed to exempt the owner of such dog from prosecution under the provisions of section 2911-1 and 2911-2 hereof.

Sec. 2. Original sections 842-1 and 842-2 of the Municipal Code of Cleveland of 1924 shall be and the same are hereby repealed.

DETROIT, MICH.

Dogs—License—Prohibition and Regulation of Running at Large—Immunization Against Rabies—Impounding and Destruction. (Ord. 145-B, May 16, 1924)

SECTION 1. That sections 1, 2, 3, 6, 8, and 9 of chapter 170 of the Compiled Ordinances of the City of Detroit, compilation of 1920, be, and the same are hereby, repealed and the following sections, to be known as sections 1, 2, 3, 6, 8, and 9, are hereby enacted in lieu thereof:

SECTION 1. It shall be unlawful for any person to own, possess, or harbor a dog in the city of Detroit without first having obtained a license therefor from the mayor, in compliance with the provisions hereinafter set forth: *Provided*, That no dog shall be allowed upon the streets of the city of Detroit or away from the premises of the owner of any such dog, unless such dog be kept at all times on a suitable leash, or a suitable muzzle: *Provided, however*, That it shall be lawful for any such dog to be upon the streets of the city of Detroit or away from the premises of the owner of such dog, without being on leash, if such dog shall have been immunized against rabies in a manner approved by the board of health of the city of Detroit or shall be muzzled. There shall be a public pound in the city of Detroit, to be located in such place as may be designated by the commissioner of police. Said public pound shall be known as a dog pound, and shall be under the supervision of said commissioner of police. The said commissioner of police is hereby authorized to appoint a poundmaster, and to fix his salary subject to the approval of the common council.

Sec. 2. Upon application filed with the license clerk giving the full name and residence of the applicant, the mayor shall cause to be issued by such clerk to each applicant a license to own or harbor a dog for the term commencing at the date of such license and terminating the 1st day of May following, except as herein otherwise provided: *Provided*, That dogs so licensed shall be allowed to be at large in accordance with the provisions of section 1 hereof. Said license shall contain on the back thereof a printed copy of this ordinance.

Sec. 3. At the time of issuing such license, the license collector shall require from each applicant a statement as to whether or not the dog sought to be licensed has been immunized against rabies in a manner approved by the board of health of the city of Detroit, and, if immunized, to produce a certificate thereof. If such dog has been immunized in accordance with the provisions hereof, the license collector shall deliver to the applicant a check of copper or brass containing the number of the license duly stamped or engraved thereon, the year when issued, together with the words, "Licensed, Detroit, Michigan." If such dog has not been immunized according to the provisions hereof, the license collector shall deliver to the applicant a check of white metal containing the number of the license duly stamped or engraved thereon, the year when issued, together with the words "Licensed, Detroit, Michigan." If, at any time during the term of the licensed period, such dog shall become immunized against rabies as aforesaid, and, upon the presentation of a proper certificate thereof, the license collector shall deliver to the owner of such dog, in exchange for the check of white

metal, a check of copper or brass as provided for herein. For each license said collector shall at the time, and before issuing the same, and for each renewal thereof, collect of each applicant, and pay into the city treasury, \$1 for each male dog and \$2 for each bitch. For each check so delivered the said collector shall in every case demand and collect, and pay into the city treasury 10 cents. All licenses under this ordinance shall expire the 1st day of May following their issue, and said collector shall collect only a pro rata of said license fees after November 30 of each year. The shape and style of said checks shall be changed each year on the 1st day of May thereof.

SEC. 6. It shall be the duty of every patrolman of the police department of the city of Detroit, and every other person who may be appointed by the common council for that purpose, to promptly seize, take up, and place in said pound, all dogs that may be found running at large, harbored, or owned contrary to the provisions of this ordinance. The person appointed as herein provided shall be paid a salary, said salary to be the same as that provided for the auxiliary officers of the Metropolitan police department.

SEC. 8. No such dog shall be released from the pound unless the owner or person entitled to demand the same shall pay to the poundmaster the sum of \$3 for the care, custody, and feeding of such dog on the part of said poundmaster, and, furthermore, procure a proper license for said dog, in the event that such dog shall not have already been duly licensed. The poundmaster shall keep a careful record of all dogs received by him, with a description thereof and the disposition of the same. He shall weekly pay into the city treasury all money received by him for the release or sale of dogs, and shall weekly file with the controller a report showing the number and sex of all dogs impounded during the week, the disposition of the same, and containing the treasurer's receipt of all money paid into the city treasury.

SEC. 9. All dogs not claimed and released within 48 hours after being impounded shall be destroyed, or, if the animal is worthy and valuable, the same shall be sold by the poundmaster at the pound by a public outcry to the highest bidder, at the hour of noon next succeeding the said 48 hours: *Provided*, That dogs impounded having been exposed to rabies, or any dog that has attacked a person, shall be kept until such time and under such conditions as shall be required by the board of health, and it shall be the duty of the poundmaster to notify the board of health when he has any good reason to believe that he has such a dog in his possession.

FORT SMITH, ARK.

Dogs—Required to be Immunized Against Rabies—Destruction When not Immunized. (Ord. 1408, April 16, 1925)

SECTION 1. That hereafter, it shall be unlawful for any person to keep or harbor within the corporate limits of the city of Fort Smith, any dog, male or female, without first having such dog vaccinated to render it immune against rabies, by a regularly licensed veterinary surgeon, of the State of Arkansas; and the certificate of such surgeon shall be exhibited to the city clerk before a license or permit to keep such dog within the city shall be issued.

SEC. 2. If any dog shall be found within the city which has not been vaccinated as prescribed in section 1, the same shall be destroyed or killed by the chief of police, and a report thereof filed in the office of the city clerk. This ordinance shall not be construed to repeal other ordinances or parts of ordinances, but shall be cumulative thereto.

SEC. 3. The violation of this ordinance shall be a misdemeanor, and any person convicted of such violation shall be fined not less than \$10 nor more than \$100 and each day of such violation shall constitute a separate offense.

FRESNO, CALIF.

Dogs—Required to be Immunized Against Rabies—Impounding and Destruction When not Immunized. (Ord. 1192, 1925)

SECTION 1. It shall be unlawful for any person to keep or harbor or have within the city of Fresno any dog, unless such dog shall have been within a period of not more than 12 months from the date of harboring, keeping, or having said dog within the city vaccinated with rabies vaccine.

SEC. 2. Every person keeping, harboring, or having any such dog shall on demand of the poundmaster of the city of Fresno, produce and exhibit to said

poundmaster a certificate issued by a duly licensed veterinarian certifying that said dog has been, on a date not more than 12 months prior to the date of the production of such certificate, vaccinated with rabies vaccine, and in the event any person keeping, harboring, or having any dog within the city shall fail, neglect, or refuse, on such demand, to produce such certificate, it shall be the duty of said poundmaster to take up and impound said dog, and unless within five days thereafter the person owning, claiming, or having said dog shall comply with the terms of this ordinance by having said dog vaccinated, it shall be the duty of said poundmaster to destroy said dog.

SEC. 3. The city veterinarian of the city of Fresno is hereby authorized to vaccinate dogs as required by the provisions of this ordinance and to issue certificates of vaccination.

The board of health of the city of Fresno is hereby authorized and empowered to fix and establish a fee to be charged and collected by the city veterinarian for each vaccination performed by him, which fee shall be paid into the city treasury through the commissioner of finance.

LITTLE ROCK, ARK.

Dogs—License and Immunization Against Rabies Required. Rabies in Animals—Reports of. Nonimmune Dogs Bitten by Rabid Dogs—Destruction or Confinement and Observation. (Ord. 3659, October 27, 1924)

SECTION 1. No one shall keep, own, or possess any dog within the limits of the city of Little Rock after this ordinance has gone into effect, except under certain restrictions mentioned in section 2 and any dog found in the city after that date which does not comply with these restrictions may lawfully be seized and held at the city pound five days by the chief of police or the health officer or one of their authorized agents; after which time such disposition may be made of said dog or dogs as may be deemed best by the chief of police or city health officer.

SEC. 2. No dog shall be permitted within the limits of the city of Little Rock unless it has been licensed and been given the rabies vaccine within one year, and wears a metal tag showing vaccination, approved by the health officer.

SEC. 3. Every veterinarian shall report promptly to the health officer all cases of rabies in animals treated by him in the city of Little Rock, giving the name and address of the owner, and owners and addresses of any dogs bitten by said dog, so far as known.

SEC. 4. If the owner of a dog has paid the license fee for 1924 and does not wish a private veterinarian to vaccinate the dog, then the city veterinarian will vaccinate the dog free for this license year beginning June 1, 1924. After June 1, 1925, the city collector is authorized not to issue a dog license unless the owner presents a certificate or metal tag from a veterinarian that the dog to be licensed has been given the approved rabies vaccine within the past 60 days.

SEC. 5. When the health officer or the chief of police or one of their authorized agents shall have reason to believe that any dog has been bitten by a mad or rabid dog, and had not been previously protected by the rabies vaccine, such dog shall be killed forthwith, unless the owner has the dog confined at once and watched for at least 60 days, or until the dog dies or is killed.

SEC. 6. Any one found guilty of violating either sections 1 or 2 of this ordinance shall, upon conviction, pay a fine of not less than \$5 and not more than \$25.

SEC. 7. This ordinance shall go into effect within 10 days of the date of its passage. Ordinance No. 2703, providing for the muzzling of dogs for certain times of the year is hereby repealed. This ordinance is not meant to conflict with ordinance No. 2506 requiring all dogs in the city to be licensed every year beginning June 1, but the license fee of \$3 required by section 2 of said ordinance is made to include the cost of vaccination against rabies by the city veterinarian.

McKEESPORT, PA.

Poultry, Pigeons, and Animals—Keeping. (Ord. May 17, 1926)

SECTION 1. That chickens, pigeons, poultry, fowl, and animals shall be kept so as not to cause a nuisance.

SEC. 2. All coops and inclosures must be whitewashed and otherwise treated at least twice a year or at the direction of the bureau of health.

SEC. 3. All coops, pens, etc., must be equipped with removable drop boards or so constructed that droppings may be easily and readily scraped from stationary boards or runways.

SEC. 4. All vegetable and fruit matter thrown into chicken or other fowl and animal yards, coops, pens, etc., must be removed at least once a week and not be allowed to decay and rot, so as not to become offensive to smell and cause a bad odor.

SEC. 5. All chicken or other fowl and animal yards must be spaded and the ground turned at least twice from April 1 to October 31 of any year or at the direction of the bureau of health.

SEC. 6. All chicken coops and other fowl and animal inclosures other than coops and inclosures in bona-fide poultry stores and other stores handling poultry must not be located within 15 feet of any inhabited house or building or street line.

SEC. 7. All chickens, pigeons, and other poultry and fowl shall be confined to proper coops and runways and shall not be allowed to run at large.

SEC. 8. Live chickens, pigeons, or other poultry or fowl shall not be handled, stored, or offered for sale or sold in any cellar, nor in any room which is dark, damp, poorly ventilated, dirty, or insanitary.

SEC. 9. Returnable or other chicken, pigeon, or other poultry and fowl crates shall not be stored on any street, sidewalk, or on any premises so as to cause a nuisance.

SEC. 10. Live chickens, pigeons, poultry, or other fowl shall not be kept in stores or rooms where other foodstuffs are stored or exposed for sale.

SEC. 11. No person or persons within the limits of the city of McKeesport shall keep live chickens, pigeons, or other poultry or fowl without first obtaining a permit from the bureau of health and for every permit so issued, the sum of 50 cents shall be paid. Each permit shall be valid for a period of one year from the 1st of June of any year. The bureau of health may refuse or revoke any permits for any past or present violations of this ordinance. All fees from the above permit shall be turned into the treasury of the city of McKeesport.

SEC. 12. The bureau of health, if they deem it necessary, may order relocation, alteration or elimination of any chicken, pigeon, or other poultry or fowl house, coop, or runway in ordering compliance with this ordinance or for violation thereof.

SEC. 13. Any person or persons violating any of the provisions of this ordinance shall on conviction by any magistrate, alderman, or justice of the peace be sentenced to pay a fine of not less than \$5, nor more than \$25, for the first offense and for each subsequent offense a fine of not more than \$100. In default of payment of any fine the defendant shall be sentenced to jail for a period of one day for each dollar of the fine imposed.

MEMPHIS, TENN.

Communicable Diseases of Animals—Reports of Cases—Prevention and Control—Disposal of Animals Dead of Disease. (Ord. January 22, 1924)

SECTION 1. That any person, firm, or corporation owning, keeping, or harboring any animal having or suspected of having anthrax, glanders, rabies, tuberculosis, or any other communicable disease, or any veterinarian who examines or professionally attends any animal so diseased, shall report in person or in writing to the department of health of the city of Memphis the following facts in regard thereto: (a) The exact location of the diseased animal; (b) The character and type of the disease; (c) The name and address of the owner thereof.

SEC. 2. That it shall be unlawful for any person, firm or corporation to bring any animal having or suspected of having a communicable disease into the city of Memphis except for the purpose of treatment or destruction.

SEC. 3. That any animal within the limits of the city of Memphis having or suspected of having a communicable disease shall be immediately isolated and treated, killed, or disposed of under the direction of the department of health.

SEC. 4. That the bodies of dead animals dying of a communicable disease, or suspected of dying of a communicable disease, shall be disposed of by burning, rendering, or burying under the supervision of the department of health.

SEC. 5. That no compensation shall be made to the owner of any animal so killed, removed, or disposed of after death under the provisions of this ordinance.

SEC. 6. That the rules governing the handling of animals having or suspected of having a communicable disease shall be as follows:

(1) Such animals shall be isolated in a well-lighted, easily cleaned, and easily disinfected room, stall, or compartment; ample water and food shall be provided to secure humane treatment; ample care shall be provided to insure complete isolation.

(2) No contact, direct or indirect, shall be allowed between the sick or suspected animal and any other animal not also isolated for the same cause.

(3) No contact, direct or indirect, shall be allowed between the sick or suspected animal and any person other than the immediate attendants or veterinarian.

(4) Where any person is bitten or in any way endangered by an animal having rabies, or suspected of having rabies, the rabid or suspected animal shall be immediately confined and the keeper of the city pound shall be notified to call for such animal. The keeper of the city pound shall immediately notify the department of health of any such animal that comes into his care. Such animal[s] shall be killed only as a last resort when it is impossible to confine them and then they shall be killed without injury to the brain. Where a laboratory examination is desired to determine whether the animal has rabies the head shall be removed from the body as near to the shoulders as is possible and the head shall be immediately delivered to the laboratory of the department of health, or placed on ice until such delivery is possible.

If no person is bitten or in any way endangered by an animal having rabies, or suspected of having rabies, the dog or other animal may be killed and immediately disposed of in the manner provided for in this ordinance.

Any animal exposed to or bitten by another rabid animal shall be immediately killed or adequately treated with antirabic virus.

Sec. 7. That any person, firm, or corporation violating any provision of this ordinance shall be guilty of a misdemeanor, and upon conviction thereof shall be fined not less than \$1 nor more than \$50. Each day's violation of any provision of this ordinance shall constitute a separate offense.

NEW YORK, N. Y.

Dead Horses—Requirements to be Observed when Placed in Street for Removal. (Res. Bd. of H., July 24, 1923)

Resolved, That section 9 of the Sanitary Code be and the same is hereby amended and made to read as follows:

Sec. 9. *Dead horses; to be tagged before placing in street.*—All dead horses, before being placed in the street, must bear a tag giving the name and address of the owner thereof and the stable from which the horse is removed. At twilight, if such dead horse has not been removed, there shall be placed by the owner, conspicuously, immediately in front thereof, suitable and sufficient lights, properly protected, which shall be kept burning during the night until such dead horse has been removed; and no person shall interfere with, obstruct, or remove such lights until such horse is removed.

Horses—Watering of. (Reg. Bd. of H., June 30, 1925)

[Sanitary Code.] SEC. 314. *The use of horse watering troughs prohibited.*—The watering of horses at a common watering trough in any public place or stable in the city of New York is hereby prohibited; nor shall any person water any horse or horses except by the use of an individual pail, bucket, or other container furnished for each such horse.

Provided, however, That a watering trough, pail, bucket, or other container may be used in common to water horses when each such trough, pail, bucket, or other container is cleaned and sterilized immediately after every such use thereof in a manner required by the department of health.

And provided further, That this section shall not be deemed to apply to watering troughs maintained in a stable where same are for the exclusive use of the horses owned by the individual, corporation, or copartnership conducting such stable.

ORANGE, N. J.

Dogs—License and Immunization Against Rabies Required. (Ord. March 18, 1924)

1. The following definitions shall apply to this ordinance:

a. The term "vaccinated" shall mean the inoculation of a dog with an anti-rabic vaccine which shall be administered by a licensed veterinarian.

b. The term "dog" shall include dogs of either sex, except where otherwise stated in this ordinance.

2. Every person owning or harboring a dog within the city of Orange shall, on or before the 1st day of January, in each year, apply to the city treasurer for a license for each dog so owned or harbored, at which time said person shall present and file with him a certificate signed by a licensed veterinarian of the State, showing that said dog has within a year been vaccinated against rabies, whereupon after paying the fee hereinafter set forth, the treasurer shall issue to such person a license together with an official tag, which shall be fastened to the collar of the said animal.

3. In the event of a dog being acquired after the 1st day of January, a license shall be obtained as aforesaid within one month from the date of acquiring the same.

4. The fee for obtaining said license shall be \$1 for each male dog, and \$3 for each female dog. Said license shall expire on the 31st day of December of each year.

Provided, however, That the license fee mentioned in this paragraph shall not apply to dogs kept within a duly licensed kennel.

5. The fee for obtaining a license known as a "kennel license" shall be \$10, and shall only be issued to a person dealing in, boarding, or caring for dogs, and shall cover all dogs in his custody: *Provided,* That all dogs in the care or custody of any such person shall have been vaccinated against rabies within a year and shall bear an identification tag approved by the department of health, showing that such dog has been properly vaccinated against rabies.

6. All dogs within the limits of the city shall be vaccinated within 60 days after the final passage of this ordinance and any unvaccinated dogs found within the limits of the city after the expiration of said 60 days shall be seized by the dog warden or by such person or persons as the board of commissioners may from time to time appoint for that purpose.

7. Any dog so seized shall be detained for the period of 48 hours, and if not claimed or redeemed by the owner or person harboring the same within that time, shall be killed and destroyed in such manner and by such person or persons as the board of commissioners may designate: *Provided,* That whenever the name of any person appears on the collar of any dog seized, such person shall forthwith be notified of such seizure in writing by postal card addressed to him or her and deposited in the United States mail.

8. No person shall hinder, molest, or interfere with any person authorized or empowered to perform any duty under this ordinance, nor shall any person attach a license tag to any dog for which it was not issued, or remove a license tag from the collar of any dog without the consent of the owner.

9. The chief of police of the city of Orange, shall upon the passage of this ordinance, and annually thereafter, cause a canvass to be made of all dogs owned or harbored within the said city and shall report the result including the names of all persons owning or harboring such animals, to the director of public affairs.

10. The police department shall furnish the necessary police protection to enable any person or persons who may be appointed for that purpose to carry out the provisions of this ordinance.

11. The director of public affairs shall have the power to promulgate all rules and regulations regarding the licensing and vaccinating of dogs.

12. The owner or person harboring a dog shall be entitled to redeem the same when seized under the provisions of this ordinance, upon establishing his title thereto to the satisfaction of the dog warden, and the payment to the city treasurer of a redemption fee of \$2.

13. Any person who shall violate any provision hereof shall be subject to a penalty not to exceed \$25 for each offense.

14. Any person who shall neglect or refuse to pay any fine in accordance with the preceding section shall be subject to imprisonment in the county jail for a period not to exceed 10 days.

PORTLAND, OREG.

Stables—License. (Ord. July 25, 1923)

SECTION 1. *Definition.*—The term "stable" whenever the same is used in this ordinance shall be understood to mean any building or structure used for the shelter of more than two animals of any of the following kinds: Horses, mules, donkeys, cattle, sheep, and goats.

SEC. 2. *License required for stables.*—The owners of all stables as defined by this ordinance are hereby required to take out a license for such stable. No

stable shall be hereafter established in any existing building or in any building hereafter erected until the owner of such building has obtained a license. The licenses issued in any calendar year shall expire on December 31 of such year.

SEC. 3. Fees for license.—No license shall be issued until the applicant for the same has paid a fee of \$2, which fee shall cover the calendar year or any part thereof.

SEC. 4. Approval of fire marshal and health bureau required.—Before any license shall be issued the approval of the fire marshal and health bureau shall be obtained, which approval is to be considered as covering the conditions in and about the stable relative to safety from fire and sanitation and if it appears to the fire marshal or the health bureau that the conditions in and about the stable are not good, then it is understood that they will withhold their approval of the same.

SEC. 5. Unlawful to operate stable without license.—After the passage of this ordinance the operation or maintenance of a stable without a license is herewith declared to be unlawful. Anyone responsible therefor is subject to the penalties hereinafter provided.

SEC. 6. Revocation of license.—If, after the issuance of a license, it appears that the conditions in the stable and maintenance relative to fire hazard and sanitation are bad the council may revoke the license and the maintenance of the stable after the license has been revoked is herewith to be considered unlawful.

SEC. 7. Ordinances in conflict repealed.—All ordinances or parts of ordinances in conflict with the provisions of this ordinance are herewith repealed.

[Section 8 prescribes the penalty for violation of the ordinance.]

RICHMOND, VA.

Dogs—Required to be Muzzled or on a Leash Unless Immunized Against Rabies—Isolation and Destruction to Prevent Spread of Rabies. (Ord. May 14, 1926)

1. That no person shall allow any dog owned or controlled by him to go upon any street, alley, park, or other public place of the city of Richmond without being so muzzled as to prevent such dog from inflicting injury upon any person or animal, or led by a leash, unless such dog has, within 12 months prior thereto, received treatment for immunization against hydrophobia or rabies: *Provided, however*, That the owners of all dogs having received treatment for hydrophobia shall cause to be attached to the collar or such dog a proper tag evidencing such fact.

2. That the board of health of the city of Richmond be and they are hereby expressly authorized and empowered, under rules and regulations to be established by them, to cause to have killed all dogs known, or reasonably suspected to be infected with hydrophobia or rabies, and in the event of doubt as to such infection, may cause any dog to be isolated for such period as the board of health may prescribe.

3. That the board of health be and it is hereby authorized and directed to adopt and promulgate rules and regulations governing the killing, treatment, or isolation of dogs infected or suspected of being infected with rabies and may promulgate such additional rules and regulations as may be necessary in the judgment of the board of health to effectually carry out the provisions of this ordinance.

4. Any person violating any of the provisions of this ordinance, or any regulation which may be adopted by the board of health in conformity therewith, shall be liable to a fine of not less than \$5 nor more than \$100 for each offense, recoverable before the police justices of the city of Richmond, as the case may be.

STOCKTON, CALIF.

Goats, Bovine Animals, and Sheep—Keeping. (Ord. 958, May 11, 1925)

SECTION 1. It shall be unlawful for any person to keep or maintain, or cause or permit to be kept or maintained, within the corporate limits of the city of Stockton, any goats, cows, or other bovine animals, or sheep, within any pen or stable, the exterior boundaries of which are within 50 feet of any school, church, public building, hotel, restaurant, lunch room, or the dwelling house of any person other than the dwelling house or residence occupied by the owner of said animal, or animals, or within 100 feet of any hospital or other building especially designed or used for the care of the sick or injured.

SEC. 2. No person shall keep any of the animals mentioned in section 1 hereof under any conditions without having first obtained a permit therefor from the district health officer of the San Joaquin local health district, who is hereby empowered to issue such permits, in accordance with the provisions of this ordinance.

Said permits shall be made to expire and be renewed on the 1st day of May of each year, and shall be nontransferable.

SEC. 3. No permit shall be granted to any person for the keeping of any animal herein described unless proper provisions have been made for a sanitary building or yard where said animal may be kept, and unless said premises are maintained in a sanitary manner the permit herein above referred to may be revoked by the officer granting the same.

SEC. 4. For the violation of any of the provisions of this ordinance, a person may upon conviction thereof be punished in the manner prescribed for the punishment of misdemeanors in the Penal Code of the State of California.

BARBER SHOPS, BEAUTY CULTURE ESTABLISHMENTS AND SCHOOLS, AND VAPOR BATH ESTABLISHMENTS

CAMBRIDGE, MASS.

Barber Shops and Beauty Parlors—License—Sanitary Requirements—Posting of Regulations. Vapor Bath and Massage Establishments—License. (Reg. Bd. of H., February 4, 1925)

133. *Public barber shops, hair-dressing establishments, manicuring, and beauty parlors regulated.*—No public barber shop, hairdressing establishment, manicuring, or beauty parlor, shall be conducted or maintained in the city of Cambridge without a license therefor issued by the board of health or otherwise than in accordance with the terms of said license and with the regulations of said board.

The term "public barber shop," "public hair-dressing establishment," "public manicuring parlor," and "public beauty parlor," as used in this section, shall be taken to mean and include all such premises as are commonly known by the terms "barber shop," "hairdressing establishment," "manicuring parlor," and "beauty parlor," respectively, and shall include all premises or portion thereof wherein the business of shaving, clipping, cutting, trimming, singeing, shampooing, massaging, manicuring, dressing, adorning, or beautifying, the human hair, face, scalp, or hands is conducted for fee, charge, or hire.

SECTION 1. *Establishments to be lighted and ventilated.*—Every public barber shop, hairdressing establishment, manicuring parlor, and beauty parlor shall be properly and adequately lighted and ventilated.

SEC. 2. *Walls, ceilings, etc., to be kept clean.*—The walls, ceilings, furniture, and other fixtures, and all other exposed surfaces in every such establishment shall be kept clean and free from dust.

SEC. 3. *Floors to be kept clean.*—Floors of every such establishment shall be thoroughly swept or mopped each day. All hair dropping upon floor shall be removed therefrom as soon as practicable and in such manner as not to cause a nuisance.

SEC. 4. *Water-closets to be provided.*—Every such establishment shall be provided with suitable and sufficient water-closets, properly and adequately flushed, trapped, and sewer connected, located in suitable and adequate, properly ventilated apartments with self-closing doors. Where both males and females are employed in any such establishment, such water-closet facilities shall be provided for separate use of each sex.

SEC. 5. *Washing facilities to be provided.*—Every such establishment shall be provided with suitable and adequate washing facilities with hot and cold running water; sinks or wash basins must be of nonabsorbent material, properly trapped, flushed, and sewer connected.

SEC. 6. *Cuspidors to be provided.*—Suitable and sufficient cuspidors shall be provided in every such establishment and no spitting shall be allowed except into these receptacles. Cuspidors shall be cleaned and disinfected daily.

SEC. 7. *Spitting signs to be posted.*—A sufficient number of notices forbidding spitting shall be kept posted conspicuously in every such establishment.

SEC. 8. *Attendants to wash hands.*—Attendants shall wash their hands thoroughly with soap and hot water before attending any person.

SEC. 9. *Infectious diseases of attendants.*—No person who is affected with any infectious disease in a communicable form shall attend any person in any such establishment.

SEC. 10. *Attendants to wear coat or uniform.*—Attendants shall wear while attending any patron in any such establishment a clean, washable, outer coat or uniform having full-length sleeves.

SEC. 11. *Infectious diseases of patrons.*—No person affected with any infectious disease in a communicable form shall be attended in any such establishment.

SEC. 12. *Implements to be cleansed and sterilized.*—All brushes, combs, razors, clippers, scissors, tweezers, black-head removers, files, pushers, buffers, and all massage and scalp applicators used in any such establishment shall be thoroughly cleansed and sterilized after each and every separate use thereof: *Provided, however,* That where complete sterilization is not practicable, the same shall be so cleansed and treated after each and every separate use thereof as to provide the maximum of sterility attainable. The use of any such implements which can not be so treated is prohibited.

SEC. 13. *Strops and hones to be kept clean.*—All razor strops and hones used in any such establishment shall be maintained in a cleanly condition at all times and no razor shall be stropped or honed after any use thereof for shaving unless the said razor shall, before such stropping or honing, have been treated as provided in regulation 12.

SEC. 14. *Individual towels required.*—No towel shall be used in any such establishment for more than one person without being laundered. Towels, when laundered, shall be washed in water of a temperature of at least 200° F.: *Providing, however,* That this latter requirement shall not apply to towels which are subjected, on the premises where washed, to a temperature of at least 200° F. in the process of drying or ironing.

SEC. 15. *Individual headrest coverings required.*—Before any patron attended in any such establishment is permitted to recline in a chair, the headrest of such chair shall be covered with a clean towel or clean sheet of paper not previously used for any other purpose.

SEC. 16. *Use of stick astringents prohibited.*—No alum, or other astringent, in stick form shall be used in any such establishment.

SEC. 17. *Use of powder puffs, sponges, and neck dusters prohibited.*—No powder puff, sponge, or neck duster shall be used in any such establishment.

SEC. 18. *Use of soap in common prohibited.*—The use of soap in common, or for more than one person, is prohibited in any such establishment.

SEC. 19. *Use of shaving cups and finger bowls in common prohibited.*—The use of shaving cups or mugs and of finger bowls in common, or for more than one person, is prohibited in any such establishment.

SEC. 20. *Regulations to be posted.*—Sufficient copies of these regulations shall be kept posted in conspicuous places in every such establishment.

SEC. 21. All licenses issued for the conduct of establishments for the giving of vapor baths, or establishments for the purpose of practicing massage shall be conditioned upon adequate arrangements being made for the separation of the sexes, and then only upon the condition that no male operator shall work upon a female patient, and no female operator shall work upon a male patient, and further that the license, at all events, will be issued only in accordance with such condition relative to the subject matter of this section, or any other section, of these rules and regulations as may be prescribed in the license to accomplish the desired end.

DENVER (CITY AND COUNTY), COLO.

Beauty Parlors and Schools—License—Sanitary Requirements—Inspection. (Ord. 268, December 22, 1925)

SECTION 1. That no person, association of persons, firm, or corporation shall engage in or carry on the business of beauty culture or conduct a beauty parlor within the city and county of Denver without first having obtained a license so to do.

SEC. 2. That the term "beauty parlor" shall be construed to mean and shall include any and every place where the business of beauty culture shall be carried on, whether by persons carrying on such business by going from house to house, or at an established place of business.

SEC. 3. That the term "beauty culture" shall be construed to mean and shall include any business in which the cosmetic arts, hairdressing or manicuring is practiced.

SEC. 4. That the business of beauty culture shall not be carried on, operated or maintained within the city and county of Denver except in a sanitary way in connection with ample facilities for cleanliness and proper sterilization, and that all instruments and apparatus used in said business shall be thoroughly cleaned and sterilized, and said business conducted only in accordance with

rules and regulations to be adopted by the manager of health and charity of said city, and county, for the proper enforcement of this ordinance.

SEC. 5. That the manager of health and charity of the city and county of Denver, is hereby authorized and it is hereby made his duty, to adopt rules and regulations for the proper enforcement of this ordinance, and to see that the same are properly enforced; and to that end he is hereby authorized, and it is hereby made his duty, to appoint an inspector who shall be a professional beauty culturist of at least three years' actual experience in the business, and whose duties shall be to inspect, under the supervision of, and as directed by, said manager of health and charity, all places of business wherein the business of beauty culture is carried on, operated, or maintained and to report his findings to said manager of health and charity, with whom he shall cooperate at all times for the enforcement of this ordinance in accordance with the rules and regulations so to be adopted by said manager.

All beauty parlors and schools for beauty culture, at all times during business hours, shall be subject to and kept open for inspection by said inspector, at his request. It shall be the duty of said inspector to devote his whole time to the making of such inspections and to the performance of such other duties in connection with the enforcement of this ordinance, as may be prescribed or required by said manager of health and charity.

SEC. 6. Said inspector shall receive a salary of not to exceed the sum of \$150 per month, payable semimonthly, as provided by the charter for the payment of employees of the said city and county. Said salary shall be payable only out of a fund to be created from the license fees herein provided for, which said license fees shall be set apart, and deposited in a special fund, to be used only for the purpose of paying the expenses incident to the granting of said licenses and the proper enforcement of this ordinance, including the salary of the said inspector, which, at all times shall be limited to the amount in said fund available for that purpose, and which salary shall in no event exceed the amount so available from said special fund. The compensation of said inspector shall be fixed by the annual appropriation ordinance.

SEC. 7. The license fees for engaging in the business of beauty culture, within the city and county of Denver, shall be as follows:

The owner and the manager of each beauty parlor shall pay a license fee of \$15 per annum.

All operators in beauty parlors, who are not owners or managers, shall pay a license fee of \$5 per annum.

In all cases where the same person is both the owner and manager of a beauty parlor, only one license fee shall be required of him.

SEC. 8. No person (other than those who at the time of the passage and final publication of this ordinance are bona fide engaged in said business), shall be licensed to engage in the business of beauty culture, in the city and county of Denver, who is not either a graduate of a recognized school of beauty culture or who has not had actual experience as an operator in said business for a period of at least one year prior to the enactment of this ordinance.

SEC. 9. No person, association of persons, firm or corporation shall maintain or operate a school for beauty culture without first having obtained a license so to do.

SEC. 10. The term "school for beauty culture" shall be construed to mean and include all places wherein the business of beauty culture is taught or instructions are given in the cosmetic arts, hairdressing or manicuring for which instructions, tuition fees are received, or charges are made.

SEC. 11. The annual license fee for each school for beauty culture shall be \$15.

SEC. 12. No license shall be granted under the terms of this ordinance to any person, association of persons, firm, or corporation except upon proof, satisfactory to the manager of safety and excise, of the good moral character of the person or persons applying for such licenses, or constituting the members of the firm or officials of the corporation owning the beauty parlor so to be licensed.

SEC. 13. The manager of safety and excise is hereby authorized, and it shall be his duty, after reasonable notice and hearing, to revoke any license granted under the terms of this ordinance, without abatement or rebatement of any part of the license fee, upon proof of any violation of any of the terms hereof, or of any of the rules and regulations adopted hereunder by the manager of health and charity, or of drunkenness or other immoral conduct on the part of any licensee, or any violation of any other ordinance or charter provision of the city and county of Denver, or the laws of the State of Colorado.

DETROIT, MICH.

Beauty Culture Establishments and Schools—Sanitary Requirements—Standards for Schools. (Reg. Bd. of H., February 2, 1926)**RULES AND REGULATIONS FOR HAIR DRESSING AND COSMETICIAN SCHOOLS AND ESTABLISHMENTS**

1. *Lighting and ventilation.*—Every school or establishment of beauty culture shall be properly and adequately lighted and ventilated.

2. *Cleanliness of walls, ceilings, and furniture.*—The walls, ceilings, furniture, and other exposed surfaces in every such establishment or school shall be kept clean and free from dust.

3. *Clean floors.*—Floors of every such establishment or school shall be thoroughly swept or mopped each day. All hair dropping upon the floor shall be removed therefrom as soon as practicable.

4. *Washing facilities.*—Every such establishment or school shall be provided with suitable and adequate washing facilities with hot and cold running water; sinks or wash basins must be of nonabsorbent material properly trapped, flushed, and sewer connected.

5. *Handwashing.*—Attendants shall wash their hands thoroughly with soap and hot water before attending any person.

6. *Infectious diseases.*—No person who is affected with any infectious disease shall be employed or attend any person in any such establishment or school. No person affected with any infectious disease shall be attended in any such establishment or school, but shall be referred to a physician.

7. *Uniform.*—All students, attendants, and instructors shall wear during hours of study or practice, a clean washable outer coat or uniform.

8. *Sterilization of implements.*—Brushes, combs, razors, clippers, scissors, tweezers, blackhead removers, files, pushers, and all massage and scalp applicators used in any such establishment or school shall be thoroughly cleaned and sterilized after each and every separate use thereof: *Provided, however,* That where complete sterilization is not practicable the same shall be so cleansed and treated after each and every separate use thereof as to provide the maximum of sterility attainable. The use of any implement which can not be so treated is prohibited.

9. *Towels.*—No towel shall be used in any such establishment or school for more than one person without being laundered. Towels when laundered shall be washed in water of a temperature of at least 200° F.: *Provided, however,* That this latter requirement shall not apply to towels which are subjected on the premises where washed, to a temperature of at least 200° F. in the process of drying or ironing.

10. *Headrest coverings.*—Before any person in any such establishment or school is permitted to recline in a chair the headrest of such a chair shall be covered with a clean towel or clean sheet of paper not previously used for any other purpose.

11. *Powder puffs, sponges, and neck dusters.*—No powder puff, sponge, or neck duster shall be used in any such establishment or school.

12. *Soap.*—The use of soap in common or for more than one person is prohibited in any such establishment or school.

13. *Finger bowls.*—The use of finger bowls in common or for more than one person is prohibited in any such establishment or school.

14. *Posting regulations.*—Copies of these regulations shall be kept posted in conspicuous places in every such establishment or school.

15. Any school or establishment which is found to be neglecting these standards will have its license revoked.

16. The term "establishment" or "school" used herein is to be construed to mean a school or establishment of beauty culture including the two branches, hairdressing and cosmetician's work.

17. All electrical devices or appliances used in hairdressing or cosmetician establishments or schools must pass the approval of the department of building and safety engineering.

STANDARDS FOR TEACHERS AND INSTRUCTION IN SCHOOLS OF BEAUTY CULTURE

1. Every owner or conductor of a school of beauty culture giving instruction therein and every other person acting as an instructor must be a graduate of a recognized school or have an instructor's license obtained by examination in the city of Detroit.

2. The school must conform in every respect to the standards of sanitation and sterilization set up by the board of health of the city of Detroit and adopted by the State.

3. The complete course of instruction must cover the subjects contained in the standard outline and be at least 600 hours in length.

4. In case all the subjects in the standard outline are not covered, the diploma must clearly state in what lines of work the operator is certified to be competent.

5. In case special short courses are given in single subjects, the period of instruction must be not less than 100 to 300 hours and the subject of sanitation and sterilization must be included in all such courses.

6. Any person applying for examination in the city of Detroit must present evidence of graduation from a recognized school or evidence that he or she has served an apprenticeship of at least 900 hours.

STANDARD CURRICULUM FOR DETROIT
SCHOOLS

Sanitation:

Sterilization—

Instruments.

Linens.

Hands.

Disinfection—

Face.

Scalp.

Shop.

Cosmetician:

Hand manipulations—

Rubbing.

Slapping.

Kneading.

Anatomy—

Facial nerves.

Facial muscles.

Electric devices—

Vibrator.

Violet ray.

Faradic.

Radio bell.

High frequency.

Packs—

Clay.

Bleach.

Eyebrow shaping—

Trimming.

Wax.

Make-up—

Cream.

Powder.

Rouge.

Nails—

Structure.

Cleansing.

Shaping.

Trimming.

Hand—

Massage.

Bleach.

Arm—

Massage.

Bleach.

Hairdressing:

Shingling—

Ladies.

Children.

Curling—

Round curl.

Hairdressing—Continued.

Curling—Continued.

Paper curl.

Water wave.

Scalp—

Hand.

Electric.

Hair and skin construction.

Dyeing—

Coloring.

Bleaching.

Washing—

Soap and water.

Sterilizing solution.

Cleansing—

Cosmetics.

Moist heat.

Ailments—

Sebaceous.

Acne.

Milia.

Comedon.

Shampooing—

Cleansing.

Rinsing.

Drying.

Modes—

Shape.

Extra hair.

Marcel waving—

Style.

Form.

Special 300 hours extra—

Permanent waving—

Parting.

Winding.

Heating.

Setting.

Special electrolysis—

Hair—

Structure.

Single needle.

Multiple needle.

Warts—

Formations.

Single needle.

Multiple needle.

Moles—

Formations.

Single needle.

Multiple needle.

EL PASO, TEX.

Barber Shops and Beauty Parlors—Permit—Health Certificate Required of Employees. (Ord. July 15, 1926)

SECTION 1. The word "barber" shall include one who shaves or trims the beard or cuts or shampoos or dresses the hair or massages the face of any person for pay, and includes barber apprentices and shop boys. Manager means any person having control of a barber shop or beauty parlor and persons working or employed therein. A barber shop is any place where the work or business of a barber is done for pay, and may or may not include a beauty parlor or any work of a beauty parlor. A beauty parlor is a place where hair dressing or manicuring of the finger nails, or massaging the skin or shampooing or washing the scalp is done for pay, and may or may not include the work or business of a barber shop.

SEC. 1 (a). The word or term "health department" as used in this ordinance shall mean and include the city health department or any of its authorized representatives.

SEC. 2. No owner, operator, or manager of a barber shop or beauty parlor shall knowingly permit any person suffering from a communicable skin disease or from a venereal disease to act as a barber or employee, or work or be employed in said shop or parlor. No person, who to his own knowledge, is suffering from a communicable disease or venereal disease shall act as a barber or work or be employed in said barber shop or beauty parlor. It shall be unlawful for a proprietor to work in such an establishment if he is infected with or afflicted by any of the diseases hereinabove named, and all such proprietors shall be subject to the medical examination hereinafter provided for.

SEC. 3. It shall be unlawful for any person, firm, corporation, or association operating a barber shop or beauty parlor in the city of El Paso to employ any person in such barber shop or beauty parlor who has not in his possession at the time of such employment an unexpired health card issued by the health department as provided for in section 8 of this ordinance.

SEC. 4. It shall be unlawful for any person to act as a barber or to perform any of the acts or duties of a beauty parlor, mentioned in section 1 of this ordinance, either as employer or employee, without having in his possession at all such times an unexpired health card issued by the health department as provided for in section 8 of this ordinance.

SEC. 5. Reputable physicians residing in the city of El Paso are authorized to examine applicants to determine whether or not such persons are afflicted with any communicable disease referred to in section 2 of this ordinance, and to issue to each such person so examined who may be free from such communicable disease a certificate that such person has been examined by said physician, giving the date of such examination, and that as a result of such examination such person so examined was found free from communicable diseases referred to in section 2, and such certificate shall further show what laboratory tests were made in such examination and the results shown by such tests. A thorough physical examination which shall include all necessary laboratory tests, shall be made in each case. All certificates shall be subject to the approval of the city health officer, or his authorized deputy, such approval to be noted thereon by the city health officer, or such deputy.

SEC. 5 (a). If any physician shall knowingly make a false statement in any such certificate issued by him he shall be guilty of an offense and subject to the penalty provided in this ordinance for violation of any of the provisions therefor.

SEC. 6. The medical examination provided for in section 5 of this ordinance shall be made and such certificate and health card provided for obtained at intervals of every six months, and the board of health may require such examination taken and certificate obtained oftener and whenever in their judgment the public health shall require the same to be done.

SEC. 7. Any person required by this ordinance to take a physical examination shall have the alternative of being examined by any reputable physician residing in the city of El Paso, of his own selection, or by the city health officer or the physician designated as his deputy therefor by such city health officer; and in the event said examination is made by the city health officer or his said deputy, such officer shall charge a fee of \$1 for such examination and the issuance of a certificate for each such person so examined, and the city health officer shall account to the city for all fees so collected.

SEC. 8. Where any person required by this ordinance to take physical examination shall have been examined by any authorized physician the certificate of such examination as provided for in section 5 issued by said physician shall be presented to the city health officer or his deputy, and said city health officer or his deputy, in the event that such certificate shall show the person so examined to be free from communicable disease as referred to in section 2 and otherwise comply with the requirements of this ordinance shall approve such health certificate and issue to such person without charge a health card showing such fact. The city health officer or his deputy shall retain in the department files the certificates of examination so presented to him by such applicant. Such health card when issued shall be dated and shall be good for a period of six months from its date, unless within such period the person to whom the same is issued shall be found to be infected with or afflicted by any of the diseases referred to in section 2 of this ordinance, in which event such health card shall be canceled and revoked.

SEC. 9. Every person, firm, or corporation desiring to maintain and operate a barber shop or beauty parlor before engaging in such business in the city of El Paso shall make written application to the city health officer for a permit, stating the name and residence of the applicant, if an individual, or all of the members of the firm if an association or partnership, or the name and residence of the applicant, its officers and directors, if a corporation, the location and description of the premises where such barber shop or beauty parlor is to be maintained and a list of the names of all employers and employees of said barber shop or beauty parlor. Upon the filing of such application, the city health officer shall cause an inspection to be made of such premises, and if it appears that all requirements of this ordinance and the sanitary laws of the State regulating such business have been complied with, such permit shall be granted to the applicant upon his having first paid the permit fee herein prescribed to the city tax collector and obtained a receipt therefor, which permit shall show the name of the applicant and the address of such barber shop or beauty parlor and shall at all times be displayed in a public and conspicuous place in the barber shop or beauty parlor for which it is issued. It shall be unlawful to engage in such business without such permit. Such permit shall not be assignable.

GLENDALÉ, CALIF.

Barber Shops—License—Sanitary Requirements—Inspection—Health Certificate Required of Barbers. (Ord. 1012, November 28, 1924)

SECTION 1. It shall be unlawful for any person afflicted with pulmonary tuberculosis or with any venereal diseases in a communicable form or other infectious or contagious disease to serve any other person as a barber in the City of Glendale.

Each person who may be engaged or intends to engage in the occupation of a barber shall file with the health officer of the city of Glendale an application for a certificate of health. Said application may be accompanied by a statement of the applicant's physical condition signed by a duly licensed physician in the State of California who has made a complete physical examination of said applicant within 30 days prior to the date of said application. Any such person filing an application for a certificate of health may request that the physical examination be made by the health officer of the city, whereupon it shall be the duty of said health officer to make the necessary physical examination without charge. If the health officer shall determine from his own examination or from the statement submitted with such application, or from other means as he may require, that the applicant for a health certificate is free from infectious or communicable diseases, he shall issue a certificate of health.

SEC. 2. It shall be unlawful for any barber to serve in his place of business any person or customer who appears to be suffering from any contagious or infectious disease. It shall be unlawful for any barber to use any tool, implement, or device in the occupation of barbering, and which is being used in the performance of services upon other persons, upon any person who appears to be suffering from any contagious or infectious disease.

SEC. 3. It shall be unlawful for any person to use any mug, shaving brush, razor, needle, shears, forceps, or any metal instrument of any kind in the performance of any services upon or for any other person in any barber shop unless such mug, shaving brush, razor, needle, clippers, forceps, or other metal instrument, shall have been cleaned and sterilized immediately before using the same.

SEC. 4. It shall be unlawful for any person, firm, or corporation, managing, conducting, or carrying on a barber shop to fail, refuse or neglect to keep such barber shop and all appurtenances thereof and all tools, instruments and appliances used therein in a clean and sanitary condition.

SEC. 5. It shall be unlawful for any person, firm, or corporation managing, conducting, or carrying on a barber shop to fail, refuse, or neglect to supply running hot and cold water for use in such barber shop, and it shall be unlawful for any person to use any water in or about the performance of any services upon or for any other person in any barber shop except such water as is furnished from such running water supply, and it shall be unlawful for any person to use any water in or about the performance of any services upon or for any person in any barber shop which has previously been used for any service or purpose in such barber shop.

SEC. 6. It shall be unlawful for any person to use or permit to be used any towel or other cloth in the performance of any service upon or for any other person in any barber shop that has been previously used for any purpose, unless such towel or other cloth shall have been laundered since such previous use and is in a clean and fresh condition: *Provided, however,* That the provisions of this section shall not apply to any cloth used to cover the clothing of any person upon or for whom any service is being performed: *And providing, also,* That it shall be unlawful to permit said last-mentioned cloth to come in contact with the skin of any person except the hands of such person upon or for whom any service is being performed.

SEC. 7. It shall be unlawful for any person to fail, refuse, or neglect to wear a clean washable apron, coat, or other outer garment while such person is engaged in the performance of any service upon or for any other person in any barber shop.

SEC. 8. It shall be unlawful for any person to use alum or any other material for the purpose of stopping the flow of blood from any other person in any barber shop, unless such alum or other material is in powdered form.

SEC. 9. It shall be unlawful for any person to use any sponge or powder puff in the performance of any service upon or for any other person in any barber shop.

SEC. 10. It shall be unlawful for any person to perform any service upon or for any other person in any barber shop while hair cut from the face or head of any other person no longer being served remains upon the chair or floor of such barber shop. It shall be the duty of the proprietor of any barber shop or the person in charge thereof to see that hair cut from the face or head of any person is removed from the chair and floor of such shop before any other person is served in the same chair.

SEC. 11. It shall be unlawful for any person to perform any service upon or for any other person in any barber shop unless such person performing such service shall have thoroughly cleansed his hands immediately before performing such service.

SEC. 12. It shall be unlawful for any person, firm, or corporation managing, conducting, or carrying on a barber shop to permit or allow any person to use the room in which the same is conducted as a sleeping apartment, and it shall be unlawful for any person to use the room in which any barber shop is conducted as a sleeping apartment.

SEC. 13. It shall be unlawful for any person, firm, or corporation to engage in or conduct any barber shop business in the city of Glendale without having first secured a license so to do from the city clerk of the city of Glendale. Any person, firm, or corporation desiring a license to engage in the barber shop business in the city of Glendale shall first file an application therefor with the said city clerk. Such application must be accompanied by a fee of \$2 and contain the name of the proprietor of the barber shop, the address of the place of business, and the number of chairs contained or to be contained in such shop.

SEC. 14. It shall be unlawful for any person, firm, or corporation conducting or managing any barber shop to refuse to allow the health officer or any duly authorized inspector to enter any portion of such barber shop, or to interfere in any manner whatsoever with the examination or inspection by said health officer or his inspectors of any barber shop or portion thereof or any tools or implements used in carrying on such business.

SEC. 15. It shall be the duty of the health officer to enforce the provisions of this ordinance, and said health officer and his inspectors are hereby authorized to enter any barber shop in the city of Glendale when the same is open for business for the purpose of inspecting the same and the contents thereof. If, upon

examination and inspection of any barber shop, the same or any portion thereof, or any tool or implement used therein, is found to be in an unclean or unsanitary condition, the health officer or his inspectors shall by notice in writing require the owner, lessee, manager, agent, or other person in charge of or in authority over such barber shop to cause the same to be cleaned and placed in a sanitary condition within a reasonable time, (dependent upon the character of the work to be done) after the date of the service of such notice, and any person failing to comply with the requirements of said notice shall be guilty of a misdemeanor and shall be punished as herein provided.

SEC. 16. Any person, firm, or corporation violating any of the provisions of this ordinance shall be deemed guilty of a misdemeanor and upon conviction thereof shall be punishable by a fine not exceeding \$300 or by imprisonment in the city jail or the county jail for a period of not more than six months, or by both such fine and imprisonment. Each such person, firm, or corporation shall be deemed guilty of a separate offense for every day during any portion of which any violation of any provision of this ordinance is continued or permitted by any such person, firm, or corporation, and shall be punishable therefor as provided by this ordinance. Any person convicted of a violation of any of the provisions of this ordinance shall have his permit and license to act as a barber revoked, and notice thereof shall be given to the city clerk by the health officer.

SEC. 17. If any section, subsection, sentence, clause, or phrase of this ordinance is for any reason held to be unconstitutional or invalid, such decision shall not affect the validity of the remaining portions of this ordinance. The city council hereby declares that it would have passed this ordinance and each section, subsection, sentence, clause, and phrase thereof, irrespective of the fact that any one or more other sections, subsections, sentences, clauses, or phrases be declared unconstitutional or invalid.

SAN DIEGO, CALIF.

Beauty Parlors or Schools—Permit—Sanitary Requirements—Operator's and Apprentice's Permits—Health Certificate Required of Employees. (Ord. 10312, December 24, 1925)

SECTION 1. It shall be unlawful for any person, firm, or corporation, owning, controlling, leasing, acting as agent for, conducting, operating, or managing any beauty parlor, cosmetician or cosmetologist shop, school, or college, massage or hairdressing establishment or room, in the city of San Diego, Calif., to conduct or operate, or to cause or permit to be conducted or operated, such beauty parlor, cosmetician or cosmetologist shop, school, or college, massage or hairdressing establishment without first applying for and receiving from the health department of the city of San Diego a permit therefore, in the manner hereinafter provided.

SEC. 2. Every applicant for such permit shall file with the health department of the city of San Diego a written application which shall state the name and address of the applicant, a description of the property by street and number wherein and whereon it is proposed to conduct such establishment; also the character of business which is proposed to be conducted and such other information as the health department of the city of San Diego by regulation may require.

Every applicant for such permit shall at the time of making such application deposit with and pay to the clerk designated by the health officer of the city of San Diego to receive such applications the annual inspection fee hereinafter in this ordinance established.

SEC. 3. Upon receipt of such application, accompanied by the fee herein established, it shall be the duty of the health department of the city of San Diego to investigate the matters set forth in such application, and the sanitary conditions in and about the place wherein or whereon it is proposed to conduct the business designated in the application, and if it shall appear to said health department, or to the officer or employee designated by the health department, or by the health officer to perform such duties, that the statements contained in the application are true, and that the existing sanitary conditions in the place mentioned in said application comply with the provisions of the ordinance and State laws in force at the time such application is considered, and conform to the rules and regulations of the health department of said city, a permit shall thereupon be granted: *Provided, however,* That such permit shall be granted only

upon the express condition that it shall be subject to revocation or suspension by said health department upon conviction of a violation by the holder of such permit, his employee, servant or agent, of any other person acting with his consent or under his authority, of any provision of any ordinance of the city of San Diego, or any law of the State of California, or any rule of the health department of said city, regulating places of the character designated in section 1 of this ordinance: *And provided, further*, That such permit may be transferred in the discretion of the board of health of said city upon application to said board of health.

INSPECTION FEE

Sec. 4. Every person, firm, or corporation applying for a permit under the provisions of this ordinance shall at the time of making application for such permit pay an annual inspection fee of \$2 to the clerk or employee of the health department of said city designated to receive such fees. All moneys received as inspection fees under the provisions of this ordinance shall be paid into the city treasury, and placed in the health fund. A permit for which application is made under the provisions of this ordinance may be granted at any time during the year, but all permits granted hereunder shall expire on the 31st day of December of the year in which the same are granted.

Sec. 5. It shall be unlawful for any person to work at the business of hair-dressing, cosmetician, cosmetologist, manicuring, masseur, or beauty parlor operator, without first applying for and receiving a permit therefor in the manner hereinafter established.

Every applicant for an operator's permit shall file with the health department a written application which shall state the name and address of the applicant together with such other information and references which the health department of the city of San Diego by regulation may require.

Every application shall be accompanied with a certificate of health properly executed on a regulation form furnished by the health department and signed by a qualified physician, licensed to practice medicine in the State of California and regularly engaged in the practice of medicine in the city of San Diego. The health officer shall approve all health certificates before a permit shall be issued and is herewith empowered to reject any certificate whenever there is reasonable ground to suspect the presence of any communicable or contagious disease or whenever there is any reasonable ground to believe that such person may be a disease carrier.

Every applicant for an operator's permit shall at the time of making such application deposit with and pay to the clerk designated by the health department of the city of San Diego to receive such applications, the annual fee of \$1.

Upon the filing of such application accompanied by the fee herein provided it shall be the duty of the health department of the city of San Diego to investigate the matters set forth in said application and if it shall appear to said health department or to the health officer or employee designated by the health department to perform such duties that the statements contained in the application are true and that the applicant has met the requirements of the regulations of the health department and is qualified to work as an operator in such establishments as are designated in section 1 a permit shall thereupon be granted only upon the express condition that such permit shall be subject to revocation or suspension by said health department upon a showing satisfactory to said health department of a violation by the holder of said permit, of any provision of any ordinance of the city of San Diego or any law of the State of California or any rule or regulation of the health department of said city or the State board of health regulating places of the character designated in section 1 of this ordinance, provided further that such permit shall not be transferable and shall expire on the 31st day of December of the year in which the same is granted.

RENEWAL OF OPERATOR'S LICENSE

Sec. 6. All persons holding an operator's permit shall make application to the health department for renewal thereof on or before the 15th day of January. Upon the filing of such application for renewal of permit accompanied by a fee of \$1 which shall be paid to the clerk designated by the health department to receive such fees, a renewal permit shall be issued and that said permit shall be subject to revocation or suspension as stipulated in section 5: *It is further provided*, That no applications for renewal of permits will be received later than the 15th day of January.

SEC. 7. It shall be unlawful for any person to work as an apprentice in any establishment designated in section 1 without first having applied for and obtained a permit from the health department of the city of San Diego. Every applicant for an apprentice permit shall file with the health department of the city of San Diego a written application which shall state the name and address of the applicant and the establishment in which the applicant proposes to work as an apprentice and such other information as the board of health by regulation may require. Said applicant shall have passed a physical examination as required of operators in section 5. Apprentices shall be not less than 16 years of age. If it shall appear to the health department that the health certificate and information filed in the application are satisfactory, an apprentice permit shall be issued without charge: *Provided, however*, that said permit is subject to revocation or suspension for cause, as provided for in section 5. All apprentice permits shall be valid throughout the term of apprenticeship.

An apprentice shall only be allowed to work under the direct supervision of a licensed operator.

UNLAWFUL TO OPERATE

SEC. 8. It shall be unlawful to operate any establishment designated in section 1 without complying with the following regulations:

(1) All beauty parlors, hairdressing, cosmetician, and cosmetologist shops shall be equipped with running hot and cold water and with all such appliances, furnishings, and materials as may be necessary to enable persons employed in and about said beauty parlors, hairdressing, cosmetician, and cosmetologist shops to comply with the requirements of this regulation, and the owners, proprietors, or managers of said beauty parlors, hairdressing, cosmetician, and cosmetologist shops and similar places shall keep their shops, furniture, tools, appliances, and equipment therein used in a sanitary condition at all times.

(2) All combs, hair brushes, dusters, and other articles must be washed at frequent intervals and shall be kept clean at all times. All scissors, pincers, needles, clippers, and other instruments must be sterilized, either by the use of an approved steam sterilizer, immersion in boiling water, or in a compound solution of cresol 5 per cent strength or other methods approved by the health department, after each separate use.

(3) No operator shall use for service of any customer any towel or wash cloth that has not been boiled or laundered since last used.

(4) All operators must wear while serving customers washable white coats or aprons.

(5) Every operator shall clean his or her hands thoroughly immediately before serving each customer.

(6) No operator shall stop the flow of blood, use alum or other material unless the same is applied as a powder and with a clean towel. The use of styptic pencils, alum blocks, or other solid styptics is prohibited.

(7) No operator shall permit any person to use the headrest of any chair under his or her control unless the headrest is covered by clean new paper or by a fresh clean towel.

(8) No persons affected with any disease of the skin or scalp shall have their hair cut in any beauty parlor, hairdressing, cosmetician or cosmetologist shop.

(9) No owner, proprietor, or manager of any establishment designated in section 1 shall require or permit any person to work, nor shall any person work in any establishment designated in section 1 who is affected with any venereal disease, tuberculosis, typhoid fever, smallpox, diphtheria, scarlet fever, yellow fever, dysentery, measles, mumps, German measles, whooping cough, chicken pox, or any other contagious or infectious diseases or any disease that may be reportable to the health department or the state board of health.

(10) No operator shall be allowed to remove the cut hairs from the face or neck of a customer by the process of blowing (i. e., blowing through the lips). Mechanical bellows or sanitary brush may be used.

(11) The use of rubber collar protectors is hereby prohibited.

SEC. 9. It shall be unlawful to operate any business designated in section 1 in any home or private residence without complying with the following regulations:

(1) All rooms wherein said character of work is being done shall be conducted apart and separate from the residence.

(2) No room wherein such an establishment is conducted shall be used as a dormitory or a place wherein meals are cooked and served.

(3) Separate plumbing shall be installed to comply with the provisions of section 8.

(4) No instruments shall be sterilized in any kitchen or bath room used for residential purposes.

(5) No room in any private residence used in the conduct of the business herein regulated shall be used for any other purpose.

POSTING OF REGULATIONS

SEC. 10. The owner, proprietor, or manager of every beauty parlor, hairdressing, cosmetician, or cosmetologist shop or similar place shall keep a copy of these regulations posted in a conspicuous place in his or her place of business, which copy shall be furnished by the health department of the city of San Diego; and shall also keep posted in a conspicuous place in his or her place of business the permit granted to him or her under the provisions of this ordinance.

SEC. 11. Any person, firm, or corporation violating any of the provisions of this ordinance shall be deemed guilty of a misdemeanor and upon conviction thereof shall be punished by a fine of not less than \$10, nor more than \$500 or by imprisonment in the city jail of the city of San Diego for a period of not less than five days nor more than six months, or by both such fine and imprisonment. Every person, firm, or corporation violating any of the provisions of this ordinance shall be deemed guilty of a separate offense for each day during which or any portion of which such violation continues, and shall be punishable therefor as herein provided.

WORCESTER, MASS.

Manicuring, Massage, and the Giving of Vapor Baths—License—Sanitary and Other Requirements. (Reg. Bd. of H., December 28, 1925)

Ordered, That the practice of manicuring and massage, and the conducting of establishments for the giving of vapor baths, be governed by the following terms, conditions, rules, and regulations:

1. Applications for licenses to practice manicuring or massage, or to conduct establishments for the giving of vapor baths for hire or reward, or to advertise or hold one's self out as being engaged in the business of manicuring, massage, or the giving of vapor baths, in the city of Worcester shall be made as follows:

(a) Application shall be made to the board of health, on an application blank furnished by the department of health, and shall supply in proper form all information called for by the blank so furnished.

(b) The application of a minor must be accompanied by a written letter or statement showing that the application has been made with the knowledge and consent of the minor's parent or guardian.

(c) If an applicant desires to engage in the practice of manicuring and also of massage, and also to conduct an establishment for the giving of vapor baths, or to engage in any two of the pursuits named, a separate application shall be filed for each. Inasmuch as the word "massage" includes facial, scalp, and every other form of massage, as well as general or medical massage, the application must show which form or forms of massage the applicant desires to practice; and each license will state what form or forms of massage the licensee is authorized to practice, and will authorize him to practice no other.

(d) On the approval of any application by the board of health, and on the payment by the applicant of a fee of \$1 for each license, a license will be issued authorizing the licensee to continue in business until the 31st day of December next following the issue of the license, unless such license be sooner revoked.

(e) Upon request of any licensee, and without the renewal of his license, the place or places where he is authorized to conduct his business may be changed, if the new place to which he proposes removing is suitable; but any such change must be authorized, before it is made, by a proper endorsement by the board of health on the license.

(f) Every application for an original license, as distinguished from an application for the renewal of a license, shall be accompanied by evidence, satisfactory to the board of health, of moral and physical fitness, and of training and experience, adequate to enable the applicant to engage in the calling that he desires to pursue; and any licensee whosever may at any time be required to furnish additional evidence of such fitness, training, and experience.

(g) Every person holding a license to practice manicuring, or massage, or to conduct an establishment for the giving of vapor baths, shall be of good moral character, and free from any disease, or drug or other habit, which may from

the standpoint of public welfare unfit him to engage in such calling; and the granting and continuance of a license shall be conditioned upon the ability of any licensee to furnish evidence satisfactory to the board of health that he or she is qualified within the meaning of this paragraph.

2. All rooms used in the conduct of the business by any person licensed to practice manicuring or massage, or to conduct an establishment for the giving of vapor baths, shall be well lighted and ventilated; and no such room shall be used or equipped for use as a bedroom unless the use of such room as a bedroom has been specially authorized by the board of health: *Provided, however,* That this section shall not be construed to prevent the manicuring or massage of any person, or the giving of a vapor bath to any person, in his own proper place of abode or in any hospital or other place for the treatment of the sick.

3. The room or rooms occupied by any person licensed to practice manicuring or massage, or to conduct an establishment for the giving of vapor baths, shall be provided with an adequate supply of running water and an adequate supply of hot water constantly during hours of business; and every such room, and all furniture and equipment therein, shall be kept clean at all times.

4. The room or rooms occupied by any person licensed to practice manicuring or massage, or to conduct an establishment for the giving of vapor baths, shall be provided with adequate cleaning and sterilizing facilities for the cleaning and sterilizing of all instruments and utensils, and for cleaning, and if necessary sterilizing the skin or flesh of the patrons.

5. Every room used for the reception or treatment of the patrons shall be so located and arranged as to afford adequate fire protection and means of escape in case of fire, and to be easy of access to any legally authorized public officer.

6. All instruments and devices used by any person licensed to practice manicuring or massage, or to conduct an establishment for the giving of vapor baths, for direct application to the nails and fingers or to other parts of the bodies of patrons, or for holding materials to be applied to the nails and fingers or other parts of the bodies, shall, so far as practicable, be such as can readily be kept clean and sterile, and shall be kept clean and as nearly sterile, as circumstances permit. Adequate provision shall be made for cleaning and sterilizing the same.

7. Robes, sheets, blankets, and pillow cases, which come into direct contact with the bodies of the patrons, and all towels and napkins, shall after having been used and before being used again be laundered in such a manner as to insure effective sterilization.

8. No unsterilized part of a percussor, vibrator, or other mechanical appliance shall be applied directly to the skin of a patron, but the part of the body being treated shall be covered with a clean towel or else the instrument shall be covered in similar manner.

9. No sponge, nor stick alum, nor any other article liable to convey infection shall be used to make application direct to the skin or to any cut or wound.

10. No person licensed to practice manicuring or massage or to conduct an establishment for the giving of vapor baths shall treat any person afflicted with any skin eruption or disease unless such person shall have furnished a certificate from a physician to the effect that the eruption or disease is not of a contagious or transmissible character.

11. Every person licensed to practice manicuring or massage shall thoroughly cleanse his or her hands by washing immediately before serving any patron.

12. No establishment for manicuring or the giving of massage shall be kept open except between the hours of 7 o'clock a. m. and 10 o'clock p. m., unless specially authorized by the board of health.

13. Every person licensed to practice manicuring or massage or to conduct an establishment for the giving of vapor baths will be given a certificate to that effect, which shall bear the signature of the licensee; and the licensee shall keep this certificate in his possession whenever and wherever he or she may be engaged in the practice of manicuring, massage, or the giving of vapor baths, and when requested shall show such certificate to any legally authorized public officer.

14. No person licensed to practice manicuring or massage or to conduct an establishment for the giving of vapor baths shall operate under any name or conduct his business under any designation not specified in his license; and in every case in which any person or establishment does operate under any name other than the licensee, the name of the licensed proprietor or manager shall be displayed in all signs and advertisements in connection with the trade or commercial name.

15. The continuance of any license now in force or hereafter granted is conditioned upon the observance by the licensee of all laws, ordinances and regulations, orders, terms, and conditions relating to the conduct of the business and also

upon the licensee's ability to produce at any time evidence satisfactory to the board of health of the licensee's moral and physical fitness and personal qualifications to practice manicuring, massage, or conduct an establishment for the giving of vapor baths. A license may also be revoked if any false statement has been made in the application for such license.

16. A license is valid only with respect to the address or addresses named in the license, and in order that a license may be continued in force after any removal from that place it is necessary that the board of health be notified in writing by the licensee of any proposed change and that it approve the same.

17. No license will be issued to conduct a vapor bath establishment until it shall be shown to the satisfaction of the board of health that adequate facilities for the giving of such baths have been or are to be provided, nor unless, nor until it shall appear to the satisfaction of the board of health that the person who is to administer such baths has adequate training and experience with respect to their administration.

18. No license will be issued to conduct an establishment for the giving of vapor baths unless or until adequate arrangements have been made for the separation of the sexes, and then only in accordance with such conditions as may be prescribed in the license to accomplish this end.

BEDDING

PATERSON, N. J.

Mattresses—Use Prohibited When Abandoned or Discarded. (Reg. Bd. of H., January 9, 1923)

A. The term "mattresses" as used in this ordinance shall be construed to mean any quilted pad, mattress, mattress pad, bunk quilt, or cushion, stuffed or filled with wool, hair, or other soft material except feathers, to be used on a couch or other bed for sleeping or reclining purposes.

B. The term "person" as used in this ordinance shall be construed to include all individuals, associations, copartnerships, or corporations.

SECTION. 1. That it shall be unlawful for any person to collect for the purpose of reusing in any manner whatsoever any mattress which has been abandoned by the owner thereof, on any public street, yard, house, or lot in the city of Paterson, or on any of the garbage dumps maintained or conducted by the city of Paterson, N. J.

SEC. 2. It shall also be unlawful for any person to manufacture any mattresses in the city of Paterson, any part of which shall be made up of any abandoned mattress as specified in this ordinance.

SEC. 3. It shall be unlawful for any person to bring into the city of Paterson for reuse or for remanufacture any mattress or any part thereof which shall have been abandoned in a manner set forth in section 1 of this ordinance.

SEC. 4. Any person violating any provision of this ordinance shall be subject, upon conviction, to a fine not exceeding \$50.

SPOKANE, WASH.

Mattresses and Pillows—Manufacture, Remaking, Renovation, Labeling, and Sale. (Ord. C3227, December 31, 1923, as Amended by Ord. C3240, January 21, 1924)

SECTION 1. *Definitions.*—As used in this ordinance the term "mattress" shall be held to mean any quilted pad, cushion, comforter, mattress, or mattress pad attached to springs or otherwise, stuffed or filled with cotton, wool, hair, feathers, or other soft material to be used on a couch or bed for sleeping or reclining purposes.

The word "pillow" shall be held to mean a case of leather, rubber, cloth, or other material stuffed with feathers or other yielding material, for use as a support for the head in sleeping or reclining.

The word "person" as used herein shall be held to include individuals, copartnerships, and corporations. The singular number shall include the plural and the masculine gender the feminine.

The term "waste" shall embrace all discarded material from mills and waste receptacles of any kind, garbage, sweepings, or other contaminated or filthy materials. The term "waste" shall not be held to include uncontaminated by-products of machines using new material.

The term "shoddy" shall include all materials made or manufactured of rags, old clothing, old carpets, rugs, burlap, and material resulting from the disintegration of any old or used fabric.

The term "secondhand" shall be held to mean any article previously used or material which has been previously used in mattresses, pillows, bedding, or otherwise.

The words "renovate" or "renovation" shall be held to mean the remaking, renewal, or cleaning of a used mattress or pillow for the owner thereof for his

own use, whether in his household or in a hotel, lodging house, rooming house, hospital, sanatorium, or other place for lodging conducted by him.

SEC. 2. License required.—No person shall maintain, conduct, or operate within the city of Spokane the business of manufacturing, remaking, or renovating mattresses or pillows, or of selling or renting secondhand mattresses or pillows, without first having obtained a license so to do in the manner hereinafter provided.

SEC. 3. Application for and issuance of license—Fees.—Any person desiring to procure a license to establish, conduct, or maintain the business of manufacturing, remaking or renovating mattresses or pillows, or of selling or renting secondhand pillows or mattresses in the city of Spokane, shall file a written application therefor with the health officer upon a printed form to be supplied by him. The application shall set forth the name or names and residence of the applicant or applicants if an individual or firm, or the name or names of the responsible managing officer or officers if the applicant be a corporation, and shall also specify the location of the place in which the business is to be conducted, together with such other information as may be required upon the form of application prepared by the health officer for use. Upon the approval of the application by the health officer he shall certify such fact to the city auditor, who, upon the payment by the applicant to the city treasurer of the fee herein prescribed shall issue the license. No application for license shall be approved by the health officer or license issued until all of the provisions of this ordinance, as well as all other ordinances of the city of Spokane in relation to such business, shall have been complied with, and unless it appears that the premises specified in the application are in a sanitary condition and have all proper equipment for carrying on the business without injury to public health, in compliance with the ordinances of the city of Spokane and the rules and regulations made by the health officer pursuant to the terms of this ordinance.

Licenses issued under this ordinance shall authorize the licensee to conduct the licensed business only at the place designated in the license.

Any license granted hereunder shall entitle the licensee to conduct the licensed business for the calendar year in which the license is issued, unless the license be revoked in the manner provided for herein. The license fee shall be \$5.

The license shall be kept posted at all times in a conspicuous place on the premises in the place where the business is carried on.

SEC. 4. Inspection of premises.—Upon the application for a license, the health officer shall cause to be made an inspection of the premises in which the business is being or to be conducted as designated in the application, and shall ascertain whether such premises are in a fit sanitary condition for the conduct of the business and comply with the ordinances of the city of Spokane in relation thereto, as well as the regulations of the health officer adopted hereunder.

SEC. 5. Revocation of license.—Any license granted hereunder may be revoked by the health officer whenever it shall be made to appear to him that the holder thereof has violated any of the provisions of this ordinance, or any rule or regulation of the health officer made hereunder, or has violated any other ordinance of the city of Spokane regulating the conduct of the licensed business. Upon the revocation of any such license by the health officer, he shall immediately serve notice thereof upon the licensee and post a copy of the order of revocation in a conspicuous place on the licensed premises. After the posting of such notice the business affected thereby shall forthwith be closed, and no mattresses or pillows shall thereafter be made therein or sold, rented, or delivered therefrom, without written permission from the health officer. An appeal may be taken to the city council from any order of revocation, and the appeal shall come on regularly for hearing before the council at the administrative session next following that on which the appeal was received. The hearing upon such appeal may be continued from time to time by the city council.

SEC. 6. Waste and shoddy not to be used.—Waste and shoddy shall not be used in the manufacture, remaking or renovation of mattresses or pillows.

In the renovation of mattresses and pillows the material therein when sterilized and disinfected as in this ordinance prescribed may be used in refilling such mattresses or pillows. If it becomes necessary to use any additional material in such renovation the same must be new material.

SEC. 7. Used or secondhand mattresses and pillows—sterilization tag required.—No person shall renovate, or remake, or buy, sell, offer for sale or rent, or have in his possession with intent to sell, renovate, remake or rent, a used or secondhand mattress or pillow unless such mattress or pillow shall have been sterilized and disinfected by a process approved by the health officer, and has attached thereto a yellow muslin or linen tag not smaller than 4 inches square, securely

sewed to the covering thereof, on which shall be plainly printed or plainly and indelibly stamped in black type not smaller than 20-point, a statement substantially as follows:

This is a (renovated) (used) (mattress) (pillow) and has been sterilized with ----- (material used) on the -----

by ----- Day, month, year
 ----- License No. -----

Person's name -----

SEC. 8. Mattresses and pillows to be tagged.—No person shall sell, offer for sale rent, deliver, or consign any mattress or pillow not having plainly and indelibly stamped or printed in black type not smaller than 18-point upon a white muslin or linen tag at least 4 inches square, fastened securely to the covering thereof, a statement setting forth the kind or kinds of materials used in filling such mattress or pillow and whether the same are in whole or in part new, old, or secondhand and the name and address of the manufacturer or vendor thereof.

Felt, cotton, or linters.—Whenever the word "felt" as applied to cotton is used in such statement concerning any mattress or pillow, the statement shall further designate whether such felt is "felted cotton" or "felted linters."

Use of floss.—It shall be unlawful to use in such statement concerning any mattress or pillow the word "floss" or words of like import, if there has been used in filling such mattress or pillow any materials other than those termed "kapok."

Use of hair.—It shall be unlawful to use in said statement concerning any mattress or pillow the word "hair" unless such mattress or pillow is entirely manufactured of animal hair.

Misrepresentation or misleading terms prohibited.—It shall be unlawful to use any misrepresentation, or any misleading term or designation in said statement.

Percentage of material used must be declared.—Any mattress made from more than one new material shall have stamped upon the tag attached thereto the percentage of each material so used.

Secondhand material must be declared.—Any mattress or pillow made from secondhand material shall have plainly and indelibly stamped or printed upon the tag attached thereto in type not smaller than 20-point the words "secondhand material."

All invoices or other instruments accompanying delivery shall set forth the true description of the mattress or pillow delivered as enumerated on the labels. (As for example, "4-40-lb. Prime Java Kapok 4/4 mattress at \$40—\$160.")

SEC. 9. Tags must not be removed or altered.—It shall be unlawful to remove, deface, or alter any mark, tag, or statement placed upon or attached to any mattress or pillow under the provisions of this ordinance.

SEC. 10. Health officer may make regulations.—The health officer of the city shall from time to time adopt such rules and regulations governing sanitation, disinfection, and sterilization and inspection of mattresses and pillows and material used in the manufacture or renovation thereof, as may be required to carry into effect the provisions of this ordinance, and such rules and regulations when issued shall be published in the Official Gazette.

SEC. 11. Access to premises.—The health officer of the city of Spokane and his duly authorized deputies shall at all times have access to premises licensed hereunder, or other place where mattresses or pillows are offered for sale, and may open any mattress or pillow and inspect any material on hand in such place when he has reason to believe that the same does not conform to the requirements of this ordinance.

SEC. 12. Condemnation and destruction authorized.—The city health officer shall be authorized to condemn and destroy any mattress or pillow or material therefore found to be insanitary or not in conformity with the requirements of this ordinance.

SEC. 13. Penalty.—Any person violating any of the provisions of this ordinance shall be guilty of a misdemeanor and upon conviction thereof shall be punished by a fine of not less than \$20 nor more than \$100, or by imprisonment in the city jail for not more than 30 days, or by both such fine and imprisonment.

Mattresses and Pillows—Methods of Sterilization and Disinfection. (Reg. H. Officer, January 31, 1924)

Sterilization and disinfection of mattresses and pillows and the material used therein as required by ordinance No. C3227 shall be in accordance with one of the following methods:

First method (sterilization).—All secondhand mattresses and pillows and all loose secondhand material, not specifically excluded by the ordinance, shall be thoroughly washed and steamed either by prolonged boiling for at least one hour or sterilization by steam under 15 pounds pressure for at least 30 minutes, or 20 pounds pressure for 20 minutes. A gauge for registering steam pressure, visible from the outside of the room, shall be provided where steam under pressure is used. Room must be steam tight.

Alternative to first method.—Two applications of streaming steam maintained for a period of one hour each to be applied at intervals of not less than 6 nor more than 24 hours will be accepted as an alternate for steam under pressure.

Valved outlets shall be provided near bottom and also the top of the room in cases where streaming steam is employed.

Second method (disinfection).—Secondhand mattresses and pillows and all loose secondhand material, not specifically excluded by the ordinance shall be treated with formaldehyde and sulphur concurrently in a moist atmosphere for a period of at least 12 hours. The sulphur process to be used shall be by the burning of 4 pounds of flowers of sulphur for each 1,000 cubic feet of air space. Formaldehyde gas shall be generated from the use of 1 pint of formaldehyde solution (37 per cent) to each 1,000 cubic feet of air space or through the use of any high-class commercial fumigators which generate an equivalent quantity of gas. Samples of commercial fumigators must be submitted to the health officer for approval.

Formaldehyde gas can be made by mixing 8 ounces of potassium permanganate with 1 pint of formaldehyde.

Directions.—Put the potassium permanganate in a large galvanized pail placed on an asbestos mat, brick, or other noncombustible material, in the center of the room to be fumigated. Place the sulphur likewise and when everything is in readiness ignite the sulphur and add the formaldehyde to the permanganate and quickly close and lock the door.

Character of disinfection rooms.—Rooms for disinfection shall be at least 10 by 10 feet with a 10-foot ceiling and made gas tight during process of sterilization and must be provided with a separate air inlet and also an exhaust ventilator leading to the open air to allow the escape of gases after the process is completed. Both inlet and exhaust connection shall be equipped with tight dampers or closure gates. All ventilators, doors, and windows must open from the outside. All doors must be locked while fumigating and carry a placard in 3-inch letters: "Danger! Charged with Formaldehyde Gas and Sulphur." Fumigating room must not be connected with any other building or used in connection with any other business operation and must be built in accordance with requirements of the building ordinance and must have the approval of the chief of the fire department. Shelving for loose material shall be of lattice or other open construction. Solid shelves will not be permitted. All shelves and racks must be placed so as to permit a straight unobstructed passageway to the door at least 24 inches wide. Loose material shall be placed in layers not deeper than 8 inches and at least 4 inches of air space must intervene between the material and the shelf above it.

Mattresses must be suspended from the ceiling, 4 inches apart, or placed in racks not nearer than 12 inches to the floor. Racks must be of open construction and kept at least 4 inches apart. Pillows must be suspended or placed on racks of open construction not nearer than 12 inches to the floor and in either case a 4-inch air space must surround each pillow.

Directions.—Sprinkle the floor with at least 2 quarts of warm water to insure the proper amount of moisture. Place articles to be disinfected in the room. Close all ventilators and windows. Place disinfectants in room as directed and quickly close and lock the door. Leave the room closed 12 hours and when opening be sure to open ventilators and windows from the outside and allow room to ventilate for at least 2 hours before entering it. Wear rubber gloves while mixing the solutions and the use of goggles is advised.

BIRTHS AND DEATHS¹

DURHAM (CITY AND COUNTY), N. C.

Births and Deaths—Registration. Dead Bodies—Burial Permit or Transportation Certificate. (Reg. Bd. of H., January 1, 1923)

SECTION. 1. That every death occurring within Durham County shall be registered with the board of health of said Durham County in a way and manner as that prescribed in section 7094 of article 6 of the Public Health Laws of North Carolina.

SEC. 2. The body of any person whose death occurs in Durham County, or which shall have been found dead therein, shall not be buried or otherwise disposed of or removed out of the county unless a burial permit or a transportation of corpse certificate has been obtained from the health officer of the city and county of Durham. As a prerequisite to the issuing of such a permit or a transportation of corpse certificate as hereinbefore specified, a standard certificate of death signed by the last-attending physician shall in all instances be filed with the health officer.

SEC. 3. The body of any person whose death occurred outside of Durham County shall not be buried in Durham County unless a permit therefor is obtained from the health officer.

SEC. 4. In case of death without medical attendance, the undertaker or other person in charge of the burial of the body shall immediately notify the health officer and the county physician of Durham County. The county physician of Durham County shall execute a death certificate as hereinbefore prescribed after the cause of death has been satisfactorily determined.

SEC. 5. Every person, firm, or corporation selling a casket for the burial of a person in Durham County shall file the standard certificate of death and obtain the burial permit for the interment of the body.

SEC. 6. Every birth occurring within Durham County shall be registered by the attending physician or midwife within five days from date of birth in a way and manner prescribed by article 6, section 7102, of the Public Health Laws of North Carolina. Said certificate of registration to be filed with the health officer of Durham County.

SEC. 7. Any person, firm, or corporation violating any provision of any section of this ordinance shall be guilty of a misdemeanor and upon conviction shall be fined \$50 or imprisoned for a period of 30 days within the discretion of the court.

Deaths—Reports by Hospitals—Burial or Removal Permit for Nonresident Deaths in Hospitals. (Reg. Bd. of H., May 12, 1925.)

SECTION 1. It shall be the duty of the superintendent or other person in charge of any public or private hospital within the city or county of Durham to report to the superintendent of health the name, residence, and the cause of death of all persons dying within the institution over which the said superintendent or other person has control. It shall further be required that the name of the undertaker or other person who signed for and removed the body appear on the report together with the place of burial. Reports to be made in writing not later than the 5th of each calendar month.

SEC. 2. It shall be unlawful for the superintendent or other person in charge of any public or private hospital within the city or county of Durham to deliver the body of a nonresident of Durham County to any undertaker or other person

¹ See also Communicable diseases, p. 44; Midwifery, p. 161.

for removal out of the county or burial within the county unless removal or burial permit be exhibited which has been duly executed by the superintendent of health or his deputy granting authority to do so.

SEC. 3. Any person or persons, firm, or corporation violating any provision of this ordinance shall be guilty of a misdemeanor and punished by a fine not to exceed \$50.

LOS ANGELES, CALIF.

Wire or Floral Designs Placed Upon or Adjacent to Graves—Removal Prohibited—Destruction within Certain Time Required. (Ord. 56,314, October 30, 1926)

SECTION 1. It shall be unlawful for a superintendent, manager, or person in charge of any cemetery located within the city of Los Angeles to permit any wire or floral design, moss, or other substance used in the making and filling of the same, when such floral design has been once placed upon or adjacent to the grave of any person buried in such cemetery or any vault in such cemetery in which any dead body has been placed, to be removed from such cemetery, except for the purpose of destroying such floral design, moss, or other substance used in the making and filling the same as hereinafter set forth. It shall be the duty of the superintendent, manager, or person in charge of every cemetery located in the city of Los Angeles to destroy or cause to be destroyed by fire so far as possible, all floral designs, together with the moss and other substance used in making and filling the same, within not less than 3 days nor more than 10 days after such floral designs have been placed upon or adjacent to the grave of any person buried in said cemetery.

SEC. 2. It shall be unlawful for any person, firm, or corporation to sell, offer for sale, purchase, receive, or remove from any cemetery located in the city of Los Angeles any wire or floral design, moss or other substance used in filling the same, when such floral design, moss or other substance has been once placed on or adjacent to the grave of any person buried in any such cemetery, or any vault in such cemetery in which any dead body has been placed, except for the purpose of destroying the same as provided in section 1 hereof.

SEC. 3. Any person, firm, or corporation violating any of the provisions of this ordinance shall be deemed guilty of a misdemeanor, and upon conviction thereof shall be punishable by a fine of not more than \$500, or by imprisonment in the city jail of the city of Los Angeles for a period of not more than six months or by both such fine and imprisonment.

NEWPORT NEWS, VA.

Births and Deaths—Registration. Dead Bodies—Burial Permit. (Ord. February 19, 1923)

SECTION 1. (a) *Record of vital statistics to be kept by the bureau of public welfare.*—The superintendent of the bureau of public health shall keep, in a manner approved by the director of public welfare, a full and correct record of vital statistics, and shall make a monthly and annual report of the births and deaths in the city to the director of public welfare and shall issue such permits as may be required by ordinances.

SEC. 5. *All births to be reported.*—Every physician or midwife practicing in the corporation under whose charge or superintendence a birth shall hereafter take place shall make true and exact register of such birth in ink on blanks furnished by the bureau of public health, for which purpose a supply of blanks shall be kept on hand by said physician or midwife. This form shall set forth, as far as can be ascertained, the full name of the child (if name has been conferred, if not a supplementary report containing name must be sent in later), its sex, color, full name and occupation of its parents, the date and place of birth, and such other data as may be necessary to properly record the facts. This certificate must be duly signed by the doctor or midwife, and sent to the office of the bureau of health within 10 days from the birth of the child. In case the birth of a child shall occur without the attendance of a physician or midwife, or should no other person be in attendance upon the mother immediately thereafter, it shall become the duty of the parent or parents of the child, or the manager or superintendent of the public or private institution in which the birth occurred, to report its birth

to the bureau of public health in the manner and within the above period required. Report of births must include all above five months in utero. Failure to comply with the provisions of this section will be punishable by a fine of not less than \$2 nor more than \$10.

SEC. 6. Registry of stillborn children.—Stillborn children and those dead at birth shall be registered as births and also deaths, and a certificate of both the birth and death shall be filed with the superintendent of the bureau of public health, in the usual form and manner, the certificate of birth to contain, in place of the name of the child, the word: "stillbirth"; reports of births and deaths must include all above five months in utero. The medical certificate of the cause of death shall be signed by the attending physician, if any, and shall state the cause of the death as "stillborn" with the cause of the stillbirth, if known, whether a premature birth, and, if born prematurely, the period of uterine gestation, in months, if known, and a burial or removal permit in the usual form shall be required. Midwives shall not sign certificates of death for stillborn children, but such cases, and stillbirths occurring without attendance of either physician or midwife, shall be treated as deaths without medical attendance, and the death certificate shall be signed by the coroner.

SEC. 7. (a) All deaths to be reported.—Whenever any person shall die within the limits of the corporation it shall be the duty of the physician who attended such person during his or her last illness, or of the coroner when the case comes within the range of his duties, to furnish within 24 hours after death in question, a certificate, written in ink, on blanks furnished by the superintendent of the bureau of public health, setting forth as far as can be ascertained the name, name of parents, age, color, residence, place of birth, occupation, condition, date and cause of death of person deceased, using terms as shown in the International List of Causes of Death, when possible. No certificate shall be accepted which gives a mere symptom as the sole cause of death (such as "asphyxia," "dropsy," "heart failure," etc.), unless accompanied by a satisfactory written explanation. Certificates containing palpable errors of names, dates, etc., or which are unsatisfactory to the superintendent of the bureau of health, or which are illegible, shall be returned and new certificate required; no corrections, erasures, or interlineations shall be permitted. Any physician who shall neglect or refuse to make the reports herein required shall be fined not less than \$2 nor more than \$10 for each offense.

(b) In case of any person who shall die within the corporation without the attendance of a physician or if the attending physician neglects or refuses to furnish the certificate required, it shall be the duty of any undertaker who may have charge of the burial and the right of any other person acquainted with the facts of the case to report the same to the superintendent of the bureau of public health, who shall thereupon be authorized to give the required certificate, provided it be not a case requiring the attendance of the coroner.

SEC. 8. (a) Interment of the dead.—No interment of the dead body of any human being or disposition thereof in any tomb, vault, or cemetery within the corporation limits, or in any cemetery or by any other means within the limits of the corporate jurisdiction shall be made without a permit granted therefor by the superintendent of the bureau of public health, nor otherwise than in accordance therewith. And no permit shall be issued by the said bureau except on presentation first of a duly executed certificate of death, nor shall any permit be issued for burial in private or in places other than those provided and recognized as public cemeteries; and no sexton, undertaker, or other person shall assist in or assent to or allow such interment or other disposition for which such permit has not been given authorizing same, and it shall be the duty of every person having such permit to preserve and return the same to the superintendent of the bureau of public health as provided in paragraph (c) of this section.

(b) No undertaker or other person shall remove from the city the remains of any dead person to any place beyond the corporation limits without first procuring a permit to do so from the superintendent of the bureau of public health.

(c) Every sexton or other person or official in charge of any cemetery or burial ground within the limits of the jurisdiction of the city of Newport News, shall, on the first of each month, make a report to the superintendent of the bureau of public health of all burials, made by him or his assistants during the preceding month, which report shall contain all items of information relative to the said decedent called for in the forms furnished for that purpose by the bureau.

(d) Failure on the part of any person to comply with the provisions of this section will be punishable by a fine of not less than \$2 nor more than \$100.

BUILDINGS, PREMISES, AND CAMPS

CINCINNATI, OHIO

Certain Residences and Business Establishments—Heating. (Reg. Bd. of H., December 9, 1925)

SECTION 1. It shall be the duty of every person who shall have contracted or undertaken, or who shall be bound to heat, or to furnish heat for any building or portion thereof, occupied as a home or place of residence of one or more persons, or as a business establishment where one or more persons are employed, to heat, or to furnish heat for every occupied room in such building, or portion thereof, so that a minimum temperature of 68° F. may be maintained therein at all such times when so occupied.

Whenever a building is heated by means of a furnace, boiler, or other apparatus under the control of the owner, agent, or lessee of such building, such owner, agent or lessee, in the absence of a written or verbal contract or agreement to the contrary, shall be conclusively presumed to have contracted, undertaken, or bound himself or herself to furnish heat in accordance with the provisions of this section.

The term "at all times when so occupied," as used in this section, unless otherwise provided by a contract or agreement, shall include the time between the hours of 6 a.m. and 11 p.m. in a building, or portion thereof, occupied as a home or place of residence, and during the usual working hours established and maintained in a building, or portion thereof, occupied as a business establishment, of each day whenever the outer or street temperature shall fall below 50° F.

Provided, that nothing herein shall apply to buildings or portions thereof, used and occupied by trades, business, or occupations where high or low temperatures are essential and unavoidable.

SEC. 2. Any person violating the provisions of the foregoing regulation shall, upon conviction thereof, be punished as provided by law.

ERIE, PA.

Noxious Weeds—Growth on Premises Prohibited. (Reg. Bd. of H., December 29, 1924)

SECTION 1. No person or persons owning, occupying, or having charge of any lot or premises in the city of Erie, Pa., shall cause, suffer, or allow poison ivy, rag weed or any other noxious weeds to grow therein or thereon, nor shall they allow the seed, pollen, or any poisonous particle or emanation from such to be carried through the air to any public place to the detriment of the health of any person residing in said city of Erie.

Penalty.—Any person or persons who shall violate any section or part thereof, of the rules and regulations of the board of health of the city of Erie, Pa., shall upon conviction therefor, before a duly authorized magistrate, be sentenced to pay such fines and penalties as are provided by the acts of assembly governing such. In the absence of legislative penalties being provided, in the manner and form as above prescribed, they shall be sentenced to pay a fine of not less than \$5 nor more than \$100 and, in default of the payment thereof with costs, shall undergo imprisonment in the county jail for a period not to exceed 30 days or both, at the discretion of said court.

HARTFORD, CONN.

Certain Rented Residences—Repair. (Ord. September 29, 1925)

Every building, or portion thereof, which shall be rented as a home or residence for one or two families, shall be kept in repair by the owner thereof in

accordance with the standards of maintenance of tenement, lodging, or boarding houses, as provided by the statutes of the State in regard to sanitary regulations. The board of health commissioners of the city of Hartford is [are] authorized and empowered to enforce the provisions of this ordinance. Every person who shall fail to comply with any order issued under the authority of this ordinance shall be fined not more than \$50.

Buildings not Connected with Public Sewer and Public Water Supply—Permit for Occupancy. (Ord. September 29, 1925)

No building not connected with a public sewer and a public water supply shall be used for human occupancy until a permit for such occupancy shall have been granted by the board of health commissioners. Such permit shall be granted when the owner shall have provided a water supply and a method of disposal of all waste matter which are deemed safe and sufficient by said board.

MISHAWAKA, IND.

Vacated Premises—Removal of Ashes, Garbage, Refuse, etc., from. (Ord. 556, June 3, 1924)

SEC. 4. Upon application for a permit to move goods, as provided herein, it shall be the duty of the chief of police to notify the health department of the city of Mishawaka, Ind., immediately thereof, and it shall then become the duty of said health department to cause the premises vacated or to be vacated, to be inspected for the purpose of ascertaining whether or not the provisions of section 5 of this ordinance have been complied with.

SEC. 5. It is hereby made the duty of all persons, firms, or corporations, vacating or removing from any dwelling house, storeroom, apartment house, or other buildings within the city of Mishawaka, within 48 hours after vacating such premises to remove, or cause to be removed, from such vacated premises and the ground and outbuildings appurtenant thereto, all ashes, garbage, dirt, paper, bottles, glass, refuse matter, and rubbish of all kinds and nature whatever; and the failure, neglect, or refusal by such person, persons, firms, or corporations, to remove or cause to be removed such ashes, garbage, dirt, paper, bottles, glass, refuse matter, and rubbish, shall be unlawful and a violation of this ordinance.

SEC. 6. Any person, persons, firm, copartnership, or corporation violating any of the provisions of this ordinance shall, upon conviction, be fined in any sum not to exceed \$50.

OAKLAND, CALIF.

Public Camps—Permit—Records—Sanitary Requirements. (Ord. 2882)

SECTION 1. No person shall establish or maintain a public camp without a permit in writing approved by the council, said approval to be given in the exercise of a sound and reasonable discretion after investigation and report by the health officer. A fee of \$15 per annum shall be charged for such permit. Such permit shall be kept posted in a conspicuous place in the public camp permitted to be established or maintained thereby. Such permit may be revoked by the council after hearing and for good cause shown and after not less than five days notice to the permittee or his agent in charge, such notice to contain the date and place of hearing and the grounds of complaint.

SEC. 2. Every person maintaining a public camp ground shall keep open to public inspection an accurate record of the names of all persons using such public camp, the date of arrival, the date of leaving and the license number of the motor vehicle, if any, of all such persons and such other information as may be required by the commissioner of public health and safety.

SEC. 3. It shall be unlawful for any person or persons, except the manager and his bona fide employees to remain or live in any public camp for more than 90 days consecutively or in any six months' period, and it shall be unlawful for any public camp permittee or his agent to permit any person to remain in the public camp under the control of such permittee, or his agent, for longer than the period herein allowed.

SEC. 4. In addition to the regulations of the State board of health every public camp shall be maintained in accordance with the following rules and it shall be unlawful for any person maintaining a public camp to violate any such rules or cause or permit the same to be violated.

Sec. 4A. All buildings and plumbing shall be erected, installed, and maintained in accordance with the State law and the ordinances of the city of Oakland applicable thereto.

Sec. 4B. In public camps maintaining permanent structures for living purposes at least one toilet for each sex shall be provided for each 10 such living quarters not provided with private toilets.

Sec. 4C. Shower baths or other bathing facilities approved by the health officer shall be provided in separate compartments for each sex in public camps accommodating 10 or more persons.

Sec. 4D. There shall be provided one or more slop sinks properly connected with a sewer or cesspool conveniently located for every 20 camping spaces or living quarters not equipped with individual kitchen sinks.

Sec. 4E. Every camp shall be provided with adequate means of lighting the same at night and all water-closets and baths shall be provided with lights which shall be kept lighted from one-half hour after sunset until one-half hour before sunrise.

Sec. 4F. Every public camp not equipped with individual kitchens or kitchen facilities for each camping party shall be provided with an adequate community kitchen approved by the health officer.

Sec. 4G. Every public camp and all structures therein shall be constructed and maintained in a sanitary condition. The health officer shall have the power, subject to the approval of the commissioner of public health and safety, to prescribe uniform rules and regulations to provide for and insure the maintenance of public camps and structures therein in a sanitary condition.

Sec. 5. Violation of this ordinance shall be punishable by a fine not exceeding \$500 or by imprisonment in the city prison for not exceeding six months or both, and the court may in its discretion, in addition to the above punishment, revoke the license to conduct a public camp.

OIL CITY, PA.

Dwellings Unfit for Use—Cleaning or Vacation. (Ord. 1056, October 3, 1923)

SECTION 1. The health officer, if satisfied upon examination, that a building, tenement, room, or cellar in the city of Oil City, Pa., which is occupied as a dwelling place has become, by reason of the number of occupants, uncleanness, or other cause unfit for such purposes, and has or is liable to become a nuisance, or to be a cause of sickness to the occupants or to the public, may issue a notice in writing to such occupant or owner, requiring the premises to be put in a cleanly condition, or to be vacated within such a time as the health officer may deem reasonable. If the person so notified neglects or refuses to comply with the terms of the notice, the health officer may cause the premises to be properly cleaned at the expense of the owner, or the occupant (as the case may be), or may order the occupant or owner to vacate the premises, which shall not again be occupied as a dwelling place until the same is put in a sanitary condition, and approved by the health officer.

Sec. 2. Any person or persons, firm or corporation, violating any of the provisions of this ordinance, shall, upon conviction, be sentenced to pay a fine or penalty not exceeding \$100 and costs, and in default of payment of the same may be sentenced to the city or county prison not exceeding 30 days: *Provided, however,* That nothing herein contained shall prevent the issuing of execution process to collect the said fine and penalty, and costs, or the abating of any nuisance at the cost and expense of the person or persons maintaining or causing the same.

PASADENA, CALIF.

Weeds, Rubbish, etc.—Growth or Existence on Premises Unlawful when a Menace to Health. (Ord. 2351, March 31, 1925)

SECTION 1. It shall be unlawful for any person, firm, or corporation, owning or having charge or control of any land, lot, or premises, or as owner, lessee, or tenant or otherwise, to allow any weeds, vegetation, or rubbish or other material to exist or grow upon such land, lot, or premises, if such weeds, vegetation, rubbish, or other material is a menace to life or health or to the safety of property, or is liable to start or spread fires thereon or to adjoining property.

Sec. 2. This ordinance shall not be deemed to deprive the city of power to remove weeds, rubbish, and other material from property in the city, and create

valid liens therefor pursuant to the provisions of ordinance No. 1132 and amendments thereof.

SEC. 3. Any person, firm, or corporation, who or which shall violate any of the provisions of this ordinance, shall be deemed guilty of a misdemeanor, and upon conviction thereof shall be punished by a fine of not more than \$500 or by imprisonment in the city jail for a period not exceeding six months, or by both such fine and imprisonment.

Buildings Constituting a Menace to Public Health or Safety—Alteration, Repair, or Destruction—Creation, Powers, and Duties of Board of Condemnation. (Ord. 2538, September 29, 1926)

SECTION 1. The board of condemnation of the city of Pasadena, Calif., is hereby created and shall consist of the health officer, the superintendent of buildings (or chief inspector), and the chief of the fire department.

SEC. 2. Said board of condemnation is hereby granted the power, after hearing, to find and determine whether any building, or other structure constitutes a menace to public health or public safety. Said board may, as part of said hearing, inspect such building or structure, and the facts observed by said board at such inspection shall constitute facts upon which it may base its findings.

Notice of the hearing shall be given by the board by posting in a conspicuous place on the building at least 10 days prior to the date of hearing a notice directed to "all persons having or claiming any interest" in the building, designating the building sought to be condemned, the grounds therefor, and the time and place of hearing. A copy of said notice shall be sent by registered mail at least 10 days prior to such hearing to each owner at his last known address, or or if such address can not, after due diligence, be ascertained, then to said owner at Pasadena, Calif.

Upon recommendation of the board of condemnation, the city manager is hereby empowered to employ such technical experts as may be necessary from time to time.

SEC. 3. For the purpose of this ordinance a building constituting a menace to public health or public safety is defined as:

* * * * *
3. Any building or other structure in the city of Pasadena which is found by the board of condemnation to be in such condition, whether from usage, neglect, want of repair, or other cause, as to be unfit or unsafe for habitation or use, or insanitary, or so as to endanger or injure neighboring property or the health or welfare of residents of the vicinity, whereby such building or structure has become, or is declared to be, a public nuisance.

4. For the purpose of this ordinance the owner is defined to mean the holder or holders of the record title in all recorded interests therein on the day upon which the notice of hearing is issued.

SEC. 4. Whenever the board of condemnation shall have determined that a building constitutes a menace to public safety it shall thereupon find and determine what repairs or alterations are necessary or whether the total destruction of such building is necessary in order that such building shall not constitute a menace to public safety or public health. Said board shall also determine and find the length of time necessary to complete such repairs, alterations, or destructions, such time to begin to run upon service of findings, and said board may, for good cause, extend such time for not to exceed 30 days.

SEC. 5. The findings of the board of condemnation shall be in writing and shall be served upon the owner personally, and if after due diligence he can not be found, shall in lieu thereof, be posted for 10 days in a conspicuous place on the building.

SEC. 6. Whenever any owner is aggrieved by any ruling or act of the board of condemnation, such owner may within five days after such ruling is made or act is done, appeal to the board of directors of the city of Pasadena by filing with the board of directors a written statement of the rulings or acts complained of and the reasons for taking such appeal. The board of directors shall thereupon appoint a time for hearing said matter, which time shall be not less than 5 days nor more than 10 days from the time said statement is filed, and shall hear the same and receive evidence in said matter and make its findings within 7 days from the time of such hearing. The board of directors may confirm, modify, or set aside the findings of the board of condemnation. The findings and determinations of the board of directors shall be final and conclusive.

SEC. 7. It shall be unlawful and punishable by a fine not exceeding \$500 or by imprisonment in the city jail for not more than six months, or both, for any owner of any building which has been found by the board of condemnation to constitute a menace to public health or public safety to fail, after service of findings as provided in section 5 hereof, to destroy, alter, or repair said building in accordance with the findings of the board and within the time allowed by the board, provided such owner has the legal power to so destroy, alter, or repair such building, and it shall be unlawful and similarly punishable for any owner after he has received the notice of hearing above provided to disable himself from destroying, altering, or repairing such building. Each day's failure to so alter, destroy, or repair such building shall constitute a distinct and separate offense.

SEC. 8. Every building constituting a menace to public health or public safety as the same is defined in section 1 [3] of this ordinance, is hereby declared to be a public nuisance and said nuisance is abated [abatable?] summarily or by civil action.

SEC. 9. Every building found by the board of condemnation to constitute a menace to public health or public safety shall, if not destroyed, altered, or repaired within the time allowed by and in accordance with the findings of the board, be deemed and every such building is hereby declared to be a public nuisance and every such nuisance may be abated summarily or by civil action.

SEC. 10. As soon as said nuisance has been abated pursuant to section 9 of this ordinance, the board of condemnation shall prepare a sworn statement showing the cost thereof, and deliver same to the controller of accounts who shall, unless the amount thereof has in the meantime been paid, note said amount on the assessment roll, against the real property charged, and thereupon said amount shall become a lien against said real property, and shall be collected at the same time and in the same manner as city taxes.

SEC. 11. That ordinance No. 1369 be and it is hereby repealed.

READING, PA.

Tenement, Lodging, and Boarding Houses—Water Supply—Toilets—Ventilation—Light—Window Area, Floor Area, and Air Space of Sleeping Rooms—Repair—Cleanliness. Certain Residences and Business Establishments—Heating. (Ord. April 9, 1924)

SECTION 1. That the provisions of this ordinance shall apply equally to individuals, partnerships, firms, and corporations as owners of any premises.

Any building or portion thereof hereafter altered and subsequently used as a tenement, lodging, or boarding house, shall conform to all of the provisions herein required for tenement, lodging, or boarding houses hereafter erected.

SEC. 2. For the purpose of this ordinance tenements, lodging and boarding houses are defined as follows:

(a) The term "tenement house" shall mean any house or building or portion thereof, which is intended or designed to be occupied or leased for occupation, or actually occupied as a home or residence for three or more families, living in separate apartments, and doing their cooking upon the premises, and shall include apartment houses, apartment hotels, and flats.

(b) The term "lodging house" shall mean any building or portion thereof in which five or more persons, not related to the proprietor or manager, are furnished with sleeping accommodations and shall include rooming houses, bachelor apartments, dormitories, barracks, bunk houses, and any other kind of building used to furnish sleeping accommodations as aforesaid.

(c) The term "boarding house" shall mean any building or portion thereof occupied for human habitation in which five or more persons, not related to the proprietor or manager, are furnished with meals and lodging.

SEC. 3. All tenement, lodging, and boarding houses shall be provided with an adequate quantity of pure and wholesome water for the use of the occupants thereof.

(a) Where the said water is obtained from a public waterworks system approved by the required State authorities, it shall be distributed by means of pipes as required hereinafter.

(b) In tenement houses, each family shall be provided with a water supply for its separate use.

(c) In lodging and boarding houses, the rooms of which are not arranged in suites or groups provided with separate water supply, and if the water is distributed by means of pipes, there shall be at least one stationary washstand for each six occupants or fraction of six.

Sec. 4. All tenement, lodging, and boarding houses shall be provided with adequate and sanitary toilet facilities for the disposal of the excreta of the occupants thereof: *Provided, however*, That no such facilities shall be located in any room used for living or sleeping purposes or in which food is prepared or handled.

(a) Where the tenement, lodging, or boarding house is accessible to a public sewer from which sewage is lawfully discharged, the said tenement, lodging, or boarding house shall be provided with water-closet facilities which shall discharge to the said sewer.

(b) Where the tenement, lodging, or boarding house is not accessible to a public sewer as aforesaid, the means for excreta or sewage disposal shall be constructed and maintained in compliance with the requirements of the "orders and regulations of the advisory board of the department of health of Pennsylvania" relating to sanitary regulation, sewage disposal, etc., approved April 4, 1923.

(c) In tenement houses, each suite or group of rooms occupied by a family shall be provided with separate toilet facilities.

(d) The minimum number of water-flushed toilets or privy seats for common or general use of the occupants of any lodging or boarding house, shall be determined from the possible number of occupants thereof, as follows: One water-flushed toilet or privy seat for each 12 persons or fraction of 12; in toilet rooms for men, one urinal or 24 inches of urinal trough for each 18 men: *Provided, however*, That the required number of water-flushed toilets or privy seats may be reduced by one-third if urinals are installed as aforesaid.

(e) In any building, the upper portion of which is used as a tenement, lodging, or boarding house, and the lower portion of which is used for commercial or business purposes, toilet facilities for the use of the occupants of the upper portion shall be provided separate and independent from any toilet facilities provided for the use of the employees of the said commercial or business establishment.

Sec. 5. All bath rooms, toilet rooms, and water-closet compartments in tenement, lodging, and boarding houses, shall be provided with ample ventilation and light by means of window area at least equal to one-tenth of the floor area and opening directly to the outside air or by equivalent artificial means maintained in constant and satisfactory service. Gas water heaters in any part of a building shall be provided with a vent pipe attached to the top of heater jacket and leading to the outside of building to carry off noxious or poisonous fumes.

Sec. 6. All rooms for living or sleeping purposes in tenement, lodging, or boarding houses shall have ample ventilation and natural light and shall be provided with windows having sash so constructed and maintained that they may be easily opened: *Provided, however*, That no cellar, basement, or lower story shall be used for living or sleeping purposes if there is any evidence of undue dampness therein.

(a) In existing buildings the required ventilation and light shall be obtained by windows opening directly to or communicating with the outside air.

(b) In buildings hereafter erected the required ventilation and light shall be obtained by windows opening directly to the outside air.

Sec. 7. No room shall be occupied for sleeping purposes in any tenement, lodging, or boarding house which does not provide the following minimum requirements per occupant:

(a) Rooms with window area in one wall: 12 square feet of window area, 70 square feet of floor area, and 600 cubic feet air space.

(b) Rooms with window area in two walls at right angles to each other: 10 square feet window area, 60 square feet floor area, and 560 cubic feet air space.

(c) Rooms with window area in two walls opposite each other: 8 square feet window area, 50 square feet floor area, and 520 cubic feet air space.

(d) Rooms with window area in three or more walls: 6 square feet window area, 40 square feet floor area, and 480 cubic feet air space.

Sec. 8. It shall be the duty of every person who shall have contracted or undertaken, or shall be bound to heat, or furnish heat for any building, or portion thereof, occupied as a home or place of residence of one or more persons, or as a business establishment where one or more persons are employed, to heat, or furnish heat, for every occupied room in such building, or portion thereof, so that a minimum temperature of 68° F. may be maintained therein at all such times: *Provided, however*, The provisions of this section shall not apply to buildings, or portions thereof, used and occupied for trades, businesses, or occupations where high or low temperatures are essential and unavoidable.

For the purpose of this section, wherever a building is heated by means of a furnace, boiler, or other apparatus under the control of the owner, agent, or lessee of such building, such owner, agent, or lessee, in the absence of a contract or agreement to the contrary, shall be deemed to have contracted, undertaken, or bound himself or herself to furnish heat in accordance with the provisions of this section.

The term "at all such times," as used in this section, unless otherwise provided by a contract or agreement, shall include the time between the hours of 6 a. m. and 10 p. m., in a building, or portion thereof, occupied as a home or place of residence, and during the usual working hours established or maintained in a building or portion thereof occupied as a business establishment, of each day whenever the outer or street temperature shall fall below 50° F.

The term "contract" as used in this section shall be taken to mean and include a verbal or written contract.

SEC. 9. The owner of any tenement, lodging, or boarding house, or the owner's authorized agent, shall keep the entire building in repair, including the plumbing, lighting, heating, and ventilating systems; and also shall keep the entire building in a cleanly condition, free from any accumulation of dirt, garbage, or other refuse matter: *Provided, however,* That the tenant or other lessee of any tenement house shall keep in a cleanly condition, free from any accumulation of dirt, garbage, or refuse matter, the portion of the tenement house occupied or used exclusively by the said tenant or other lessee.

SEC. 10. Any person violating the provisions of this ordinance shall be liable to a penalty of not less than \$10 nor more than \$100, to be recovered in the name of the city of Reading.

SEATTLE, WASH.

Certain Places of Residence—Heating. (Ord. 39104, as Amended by Ord. 47936, November 14, 1924)

SECTION 1. This entire ordinance shall be deemed an exercise of the police power of the State of Washington and of the city of Seattle for the protection of the public health, and all its provisions shall be liberally construed for the accomplishment of that purpose.

SEC. 2. The word "person" wherever used in this ordinance shall be held and construed to mean and include natural persons, firms, copartnerships and corporations, and other associations of natural persons, whether acting by themselves or by servants, agents, or employees. Words in the present tense shall include the future tense, and in the masculine shall include the feminine and neuter genders, and in the singular shall include the plural. "Healthful temperature" shall mean a temperature of not more than 68°, nor less than 60° F.

SEC. 3. Every person concerned in the commission of a misdemeanor in violation of this ordinance, whether he directly commits the act or omits to do the thing constituting the offense, or aids or abets the same, and whether present or absent; and every person who directly or indirectly counsels, encourages, hires, commands, induces, or otherwise procures another to commit such misdemeanor is and shall be a principal under the terms of this ordinance and shall be proceeded against and prosecuted as such.

SEC. 4. If any part, provision, or section of this ordinance shall be held to be void or unconstitutional, all other parts, provisions, and sections of the ordinance not expressly so held to be void or unconstitutional, shall continue in full force and effect.

SEC. 5. Every person in charge or control of any tenement, apartment house, inn, hotel, or lodging house who undertakes to furnish artificial heat to another within such place, shall for such purpose install and maintain a good and sufficient heating system which will uniformly heat, and be capable of so heating, all parts thereof to a temperature of 68° F. in zero weather, with due regard to all laws and ordinances pertaining to and regulating ventilation and humidity, and it shall be unlawful for such person to fail, neglect, or refuse to install or maintain the same.

SEC. 6. Every person in charge or control of the artificial heating of any tenement, apartment house, inn, hotel, or lodging house, in case artificial heating is done for or on behalf of another therein, and every person who undertakes to furnish artificial heating to another within such place, shall at all times (except during the months of June, July, August and September), between the hours of 7 o'clock a. m. and 8 o'clock a. m. keep and maintain therein a temperature of not less than 60° F.; between the hours of 8 a. m. and 9 a. m., a temperature of

not less than 65°, and between the hours of 9 a. m. and 10.30 p. m. a temperature of not less than 68°, when such building or place is occupied by the one to whom such heat is undertaken to be furnished, at all times complying with all laws and ordinances pertaining to and regulating humidity and ventilation, and it shall be unlawful for such persons to fail, neglect, or refuse to keep and maintain such healthful temperature therein. In all tenements, apartment houses, inns, hotels and lodging houses the owners and proprietors shall be presumed to have undertaken to furnish artificial heat for and on behalf of all tenants and guests therein unless a specific agreement to the contrary is expressly shown, but this provision shall not be deemed to excuse or relieve from prosecution any other person undertaking to furnish artificial heat for or on behalf of said owners or proprietors.

SEC. 7. The commissioner of health and his duly authorized agents shall have the right at all reasonable hours to enter any building or place coming under the provisions of this ordinance and to place and maintain therein recording thermometers or other instruments for the gauging and measuring of heat, and it shall be unlawful to interfere [with] or obstruct said officers in so doing.

SEC. 8. The provisions of this ordinance shall not be deemed or held to apply to a maximum temperature of more than 68° F. in any of the above-mentioned places during such times as the natural temperature may be above 68°, nor shall the provisions of this ordinance be deemed or held to apply to any building occupied by one family only and used exclusively as a private dwelling.

SEC. 9. Any person violating any of the provisions of this ordinance or failing to comply with the terms and requirements thereof, shall be deemed guilty of a misdemeanor, and on conviction thereof shall be fined in any sum not exceeding \$300 or imprisoned in the city jail for a term not exceeding 90 days, or may be both fined and imprisoned.

TACOMA, WASH.

Cesspools—Filling and Closing. Garbage and Débris—Removal. Grass, Weeds, and Brush—Cutting and Removal. (Ord. 8878, July 28, 1926)

SECTION 1. It shall be the duty of the commissioner of public affairs of the city of Tacoma, whenever there is on any property in the city of Tacoma, a cesspool or any garbage, débris, grass, weeds, or brush, to give notice in writing to the owner thereof or to the agent of such owner if known, requiring such owner to cause said cesspool to be filled or closed, or to remove any garbage or débris, or to cut and remove any grass, weeds, and brush on such property within such time as may be specified in such notice. Such notice shall contain an estimate of the cost of the work to be done and shall state that in case such work is not done within the time specified in such notice, that a copy of such notice will be filed with the city council at the time specified in such notice and that at such time the council will hear and decide upon all objections which may be filed against doing such work, and will determine whether or not such work shall be done.

SEC. 2. Whenever any such property is owned by a nonresident and such owner has no known agent in the city of Tacoma, or the owner of such property is unknown, notice shall be served by posting a copy thereof in a conspicuous place on such property and by publication of such notice once in the official newspaper at least five days prior to the day fixed for the hearing thereon.

SEC. 3. If the council at the time of such hearing shall find that such work shall be done and shall pass a resolution finding such fact, and shall order the commissioner of public affairs to proceed with such work, then the commissioner of public affairs shall enter upon such land or premises and cause such work to be done.

SEC. 4. The commissioner of public affairs shall keep an accurate account of the expense incurred by him in performing such work with respect to each lot or parcel of land, and shall make a statement containing the amount of such expense, a description of the lot or parcel of land affected, and a demand that such amount be paid on or before such time (not less than 20 days) as may be specified in said statement, and shall deliver or mail the same to the owner of each lot or parcel of land affected if known, and, if unknown, shall publish the same in the official newspaper for one issue at least 20 days before the time fixed for payment therein; and if such owner refuses or neglects to make such payment within the time specified therefor, the commissioner of public affairs shall file a copy of such statement with the city council, and if the city council shall find the same correct, it shall order the same paid out of any funds available therefor, and the amount so paid shall be replaced in such fund when the same is collected, as hereinafter provided.

SEC. 5. Whenever the city council shall cause any such claim to be paid as aforesaid, the same shall be filed with the city controller, who shall make out a roll showing the amount of the claim against each lot or parcel of land, giving an accurate description of such lot or parcel of land and certifying as to the correctness of same, and shall turn over such roll to the city treasurer for collection, and the same may at any time thereafter be collected in the manner provided for foreclosure of mechanics' liens, under the law of the State of Washington.

SEC. 6. That all charges and expenses of carrying out the provisions of this ordinance shall be liens upon the property assessed for the work herein provided for, and shall take effect from the time the assessment roll is placed in the hands of the city treasurer for collection.

SEC. 7. That ordinance No. 3198 of the city of Tacoma be and the same is hereby repealed.

COMMON DRINKING CUPS AND COMMON TOWELS

MONTCLAIR, N. J.

Common Towels and Common Drinking Cups—Prohibited in Public Places. (Ord. April 7, 1925)

ARTICLE 17—COMMON USE OF TOWEL AND CUPS

SECTION 1. No person owning or having the possession, charge, or management of any lavatory, wash room or wash place in any building, hospital, club, place of assembly, railway station, public waiting place, public conveyance market, playground, park, or other public place, shall provide or permit to be used, in or about such lavatory or wash place, any towel for common use. The term, "common use," in this section shall be construed to mean use by any person after use by any other person of any towel without the cleansing thereof before each such use. Such cleansing shall consist of a thorough washing and drying of such towel in such manner as to destroy pathogenic bacteria.

SEC. 2. It shall be unlawful to provide a common cup:

- (a) In any public park, street, or way.
- (b) In any building or premises used as a public institution, hotel, theater, public hall or public school, or in any part of any factory, market, office building, or store of any kind which is open to the general public.
- (c) In any railroad station, railroad car.

The term, "common drinking cup," as used in these regulations shall be construed to mean any vessel or utensil for conveying water to the mouth and available for common use by the public.

COMMUNICABLE DISEASES¹

BLOOMFIELD, N. J.

Ophthalmia Neonatorum—Preventive Treatment. (Reg. Bd. of H., March 10, 1924)

SEC. 118. *Prevention of infantile blindness.*—Any physician, midwife, or other person in attendance on a confinement case, shall within two hours after the birth of a child, use prophylactic treatment for the prevention of infantile blindness. Three drops of a 1 per cent fresh solution of nitrate of silver, shall be dropped in each eye after the eyelids have been opened, or 10 per cent solution of argyrol.

CHICAGO, ILL.

Communicable Diseases—Disinfection—Quarantine—Duties of Board of Health—Powers of Commissioner of Health. (Ord. January 13, 1926)

[Section 1783 of the Municipal Code, 1922, was amended to read as follows:]
1783. *Disinfection of premises.*—The commissioner of health, pursuant to the action or direction of the board of health of the city of Chicago, shall have power to cause any house or any premises to be cleansed, disinfected, or closed to visitors, and prevent persons from resorting thereto while any such house or premises contains any person laboring under any contagious or epidemic disease; he may, by an order in writing, direct any nuisance to be abated, or unwholesome matter or substance, dirt or filth, to be removed from any house or premises, and may prescribe the time and mode of doing so, and take any other measures he may deem necessary and proper to prevent the spread of any contagious or epidemic disease, subject, however, to the rules and regulations promulgated by the said board of health and to any orders issued by it.

It shall be the duty of the said board of health to determine when a disease is contagious or epidemic, and to establish quarantine regulations whenever it is deemed necessary, and all duties of the commissioner of health prescribed by ordinance in relation thereto shall be exercised under the direction and jurisdiction of such board of health.

CLEVELAND, OHIO

Communicable Diseases—Hospitalization—Approved Area of Quarantine. (Ord. 73110, February 23, 1926)

SECTION 1. That section 401 of the Municipal Code of Cleveland of 1924 be supplemented, and that section 904 of said code be amended and supplemented as follows:

SEC. 401-a. *Approved area of quarantine.*—Any building, structure, place, premises, or establishment or part thereof which is used for the purpose of housing and isolation under medical care or otherwise, any person or persons afflicted with one or more communicable diseases named in section 895 of this chapter, and approved by the official charged with the enforcement of this chapter as adequate and suitable for proper and sufficient protection of the public health, shall, for the purpose of this chapter, be deemed to be an approved area of quarantine.

SEC. 904. *Removal to quarantine hospital.*—Whenever any person is sick with any communicable disease under such circumstances, as by reason of his location, to cause danger to the health of any other person, the official charged with the enforcement of this chapter may cause the removal of such sick person to a quarantine hospital or hospital equipped to prevent such sick person from mingling with persons other than the attendants of such hospital and may prohibit ingress or egress to or from such hospital and the premises thereof. No superintendent,

¹See also Animals, p. 1; Hospitals, homes, and nurseries, p. 117; Midwifery, p. 161; Venereal diseases, p. 217.

physician, interne, nurse, or other admitting officer of a hospital or other institution shall receive or admit as patients or inmates any person afflicted with chickenpox, diphtheria, measles, scarlet fever, typhus fever, mumps, whooping cough, or any other communicable disease specified by the official charged with the enforcement of this chapter, unless such hospital or institution shall have received a certificate of registration as an approved area of quarantine as hereinafter provided, nor without a written permit for each such person received or admitted. Such permits for the admission of persons afflicted with any of the diseases aforesaid may be granted by the official charged with the enforcement of this chapter, provided that isolation and such other preventive measures prescribed and approved by said official, and all ordinances and laws pertaining to the quarantine of communicable diseases shall be observed.

Sec. 904-a. Registration as an approved area of quarantine.—No building or other structure shall be used as a place in which to admit or receive persons afflicted with any of the diseases enumerated in section 904 unless the building, rooms, wards, dormitories, beds, and accessories designed for such use shall have been inspected by the official charged with the enforcement of this chapter, and approved by him as an approved area of quarantine, and a certificate of such approval delivered to the person in charge of such building or structure. Such certificate shall be kept on the premises for which the same is granted and exhibited on request. Such certificate shall expire at the close of the calendar year in which same is issued and may be sooner recalled by the official charged with the enforcement of this chapter for a reasonable cause.

DETROIT, MICH.

Whooping Cough—Placarding—Isolation—Reports of Suspected Cases—Diagnosis—Instructions to Prevent Spread—Discontinuance of Clinics and Use of Arm Bands—School Attendance. (Reg. Dept. of H., 1925)

1. Whenever a case of whooping cough is reported to the registrar of the department of health, a nurse from the division of communicable diseases will go to the home and perform the following duties:

- (a) Warning placard will be posted at all entrances to the isolation area.
- (b) Circular issued by the department of health on the subject of whooping cough will be given to the caretaker of the patient.
- (c) The nurse will instruct the caretaker relative to the disposal of sputum and vomitus. If the sputum or vomitus is collected on soft paper it may be disposed of through the flush toilet.
- (d) Instructions regarding the importance of frequent disinfection of the hands and face of the patient, and hands of the caretaker after handling the patient.
- (e) Instructions will be given regarding the importance of fresh air, sunlight, and rest in bed.
- (f) Urge the removal of susceptible contacts to home of adult friends.

2. When in doubt, it shall be the duty of every physician or other informed person to report to the registrar of the department of health the full name, age, and address of every person suspected of having whooping cough. If the person reporting the case is a physician, the registrar will notify the diagnostician, and ask him to examine the case for diagnosis. If the person reporting the case is not a physician the registrar will notify the chief nurse of the contagious division, who will, in turn, send a nurse to the home to inquire regarding the condition of the patient. If the nurse believes the case to be suspicious of whooping cough, she will notify the registrar who will in turn, send a diagnostician to further examine the patient and make diagnosis.

3. The patient and susceptible contacts shall, during the period of isolation, be confined to the premises, except that susceptible contacts may be transferred to the home of adult friends for observation during the period of isolation of the patient. Observation of such contacts will be discontinued in two weeks, provided no symptoms of whooping cough develop in the meantime.

4. For the purpose of this isolation premises shall include the home and rear yard only, except that if the home is an apartment house, or multiple dwelling, in which other susceptible contacts reside, the patient and susceptible contacts will not be allowed the use of any yard.

5. Whooping cough clinics by the department of health will be discontinued. Physicians and nurses of the department will not send a case of whooping cough to the department clinic for diagnosis and treatment. Whenever possible the patient will be referred to his private physician, otherwise the case should be referred to the city physician.

6. The use of arm bands will be discontinued.
7. Susceptible contacts, for the purpose of this regulation, are declared to mean children of preschool and grade-school age, who have not previously had whooping cough. Evidence of having had whooping cough shall consist in a report being filed with a department of health, or a certificate signed by the attending physician.
8. Isolation period for whooping cough shall be four weeks from the date of report.
9. At the termination of the isolation a nurse from the department of health will remove the warning sign and advise the caretaker to ask for a permit slip to return to school when the patient has stopped whooping. The department nurse will return to examine upon request of truant officer.
10. School children will not be given a return permit until they have recovered from whooping.

DURHAM (CITY AND COUNTY), N. C.

Pupils—Required to be Vaccinated Against Smallpox. (Reg. Bd. of H., May 12, 1925)

SECTION 1. Any child or minor attending any elementary or high school, public or private, within the corporate limits of the city of Durham, shall be successfully vaccinated against smallpox before being admitted to said schools.

SEC. 2. The term "successfully vaccinated" as used in this ordinance shall be construed to mean the application of smallpox virus to the body of a person until a "take" is secured as evidenced by a permanent vaccination scar.

SEC. 3. It shall be the duty of the parent or guardian of any child or minor who enrolls in any elementary or high school, public or private, within the corporate limits of the city of Durham, to have said child or minor successfully vaccinated against smallpox before being presented for admission to any school as heretofore mentioned in this ordinance.

SEC. 4. Any child or minor subject to attend any school within the corporate limits of the city of Durham as heretofore mentioned in this ordinance may be exempt from vaccination if it can be definitely established that the child in question has had smallpox or if in the opinion of the health officer or the medical inspector of schools an ailment of a chronic nature exists which would warrant exemption. For any other cause only temporary exemption from vaccination may be granted.

SEC. 5. Penalty.—If any person shall violate any provision of any section of this ordinance he or she shall be guilty of a misdemeanor and punished by a fine not to exceed \$50 or imprisoned for 30 days, one or both within the discretion of the court.

SEC. 6. This ordinance to become effective on and after the 1st day of September, 1925.

ELGIN, ILL.

Vaccination—Prerequisite to School Attendance When. (Reg. Bd. of H., September 17, 1926)

SEC. 6. Vaccination.—Whenever smallpox exists in the city of Elgin and there is reason to apprehend its spread, no child, teacher, or other attendant shall be admitted, received, or retained in any public or private school in such city, who can not furnish the proper school authorities a physician's certificate to the effect that such person has previously had smallpox or is protected against smallpox by a successful external vaccination. It shall be the duty of all school authorities to obey and enforce the provisions of this ordinance.

ELIZABETH, N. J.

Communicable Diseases—Reports of Cases—Examination of Suspected Cases—Incubation Periods—Isolation—Placarding—Hospitalization—Disinfection—Movement of Certain Persons or Articles—School Attendance—Library Books—Funerals—Requirements Governing Undertakers—Preventive Treatment for and Reports of Ophthalmia Neonatorum—Sale of Medicine for Venereal Diseases. (Reg. Bd. of H., June 10, 1926)

SEC. 133. Diseases to be reported.—Every physician must report to this board in writing within 12 hours after his first professional attendance the name and address of every person having anthrax, chicken pox, cholera (Asiatic), diphtheria

(membranous croup), dysentery (amebic and bacillary), glanders, influenza, leprosy, malaria, measles, measles (German), meningitis (epidemic cerebrospinal), mumps, ophthalmia neonatorum, paratyphoid fever, pneumonia (broncho, lobar), plague, poliomyelitis (acute anterior), (infantile paralysis), rabies (hydrophobia), scarlet fever, smallpox (varioid), trachoma, trichinosis, tuberculosis (all forms), typhoid fever, typhus fever (Brill's disease), whooping cough, yellow fever, or any other contagious, infectious, or communicable diseases, which hereafter may be publicly declared by the board of health to be preventable and especially dangerous to the public health.

SEC. 134. *Medical examination for diagnosis authorized.*—Whenever the health officer shall deem it necessary to establish the true character of any disease which in his opinion may be communicable, a medical examination of the person supposed to be affected by such disease may be required, and it shall be the duty of such person to submit to such examination.

SEC. 135. *Incubation and isolation periods.*—The maximum periods of incubation and minimum periods of isolation of persons affected with contagious or communicable diseases shall be those set forth by the State department of health.

SEC. 136. *Premises to be placarded.*—Upon the receipt of a report of the existence of a case of smallpox, varioloid, scarlet fever, diphtheria, epidemic cerebrospinal meningitis or acute anterior poliomyelitis the health officer shall cause to be placed upon the premises in which the case may be located a placard or placards which shall state the nature of the disease, and said placard or placards shall remain under penalty of \$20 until removed by the direction of the health officer at the termination of the disease and the release of quarantine.

SEC. 137. *Contagious disease to be isolated and disinfection performed when necessary.*—In case communicable disease occurs in this city the person affected thereby shall, at the discretion of the board of health, be isolated or said person may be removed to such locality as the board of health may order and direct; and all buildings, clothing, property, and premises and vehicles which may become infected by the presence of persons affected by communicable diseases, shall be disinfected, fumigated, or destroyed and said disinfection, fumigation, or destruction shall be made and performed in such manner and with such materials and within such stated time and under such supervision as the board of health or its agents may direct.

SEC. 138. *Permit required for introduction to and removal from city of infected persons or articles.*—No person or articles liable to propagate a dangerous disease shall be brought into the city without the special permit and direction of the board of health, and no person shall remove any articles liable to propagate a dangerous or contagious disease, without a permit from this board.

SEC. 139. *Trachoma.*—No child suffering from trachoma shall be allowed to attend any public, private, or parochial school or have close association with other individuals, unless it shall present to the board of health a certificate from a competent physician that the case is not in a contagious stage.

SEC. 140. *School permits.*—No principal, teacher, or superintendent of any school, and no parent or guardian of any child attending any school shall knowingly permit any child sick with any contagious disease, or any child residing in the family in any house in which such disease shall exist, to attend any school until this board shall have given it[s] permit therefor; and any person offending against any of the provisions of this section shall forfeit and pay a penalty of \$10.

SEC. 141. *Public library books from infected premises.*—No person from any dwelling wherein a disease dangerous to the public health exists shall take any book or magazine to or from the public library without a permit from the board of health. The board will inform the librarian of all cases of said diseases, and until a written permit is given he shall allow neither books nor magazines to be taken to or returned from the dwellings where such cases exist.

SEC. 142. *Private funeral to be held.*—There shall not be a public or church funeral of any person who has died of smallpox, diphtheria, membranous croup, scarlet fever, yellow fever, typhus fever, or Asiatic cholera, but the funeral of such person shall be private, and held within 24 hours of the death of said person and it shall not be lawful to invite or permit at the funeral of any person who has died of any of the above diseases, or of any contagious or pestilential disease, or at any services connected therewith, any person whose attendance is not necessary, or to whom there is danger of contagion thereby.

SEC. 143. *Requirements for persons dying from contagion.*—It shall be the duty of every undertaker having notice of the death of any person within the city of

Elizabeth of smallpox, varioloid, diphtheria, membranous croup, scarlet fever, yellow fever, typhus fever, Asiatic cholera, leprosy, measles, or any other contagious disease dangerous to the general health of the community or of the bringing of the dead body of any person who has died of any such disease into said city, to give immediate notice thereof to this board of health. And no undertaker shall retain or expose or assist in the retention or exposure of the dead body of any such dead person, except in a coffin or casket properly sealed, nor shall he allow any such body to be placed in any coffin or casket unless the body has been thoroughly disinfected and wrapped in a sheet saturated with a proper disinfecting solution and the coffin or casket be immediately and permanently sealed. Nor shall he assist in the public or church funeral of any such person.

SEC. 144. *Druggist not to prescribe for venereal disease.*—No druggist or person other than a physician licensed to practice medicine in the city of Elizabeth shall sell or dispense any drug or patent medicine for the treatment of any venereal disease without a prescription from a duly licensed physician as aforesaid.

SEC. 145. *Silver nitrate for infant's eyes.*—It shall be the duty of every physician or midwife in attendance upon the birth of an infant to drop in each eye of said infant one drop of a 1 per cent solution of silver nitrate immediately after the birth of said infant.

SEC. 146. *Unusual eye conditions of infants.*—It shall be the duty of every midwife or nurse having charge of a new-born infant to report in writing within six hours to the board of health, if any pus or secretion form in the eyes or on the eyelids, or if any or both eyes of said infant become reddened or swollen within two weeks after birth.

SEC. 147. *Rented premises to be disinfected after contagion.*—No person shall let or hire any house or room in a house in which cholera, smallpox, membranous croup, diphtheria, yellow, typhoid, or scarlet fever has existed without having caused the house or premises connected therewith to be disinfected to the satisfaction of the board of health.

EL PASO, TEX.

Smallpox Vaccination in Schools—Powers of Board of Health Concerning. (Ord. August 30, 1923)

SECTION. 1. That it shall be the duty of all persons conducting any place or institution of education within the limits of the city of El Paso to furnish the board of health of said city, whenever so required by it, a list by name of all teachers, pupils, and employees and other persons connected therewith in any capacity whatsoever and also a statement duly verified by affidavit of such person or persons so conducting such place or institution, or other person cognizant of such facts, showing the date, time, and place of vaccination for smallpox of all such teachers, pupils, employees, and other persons connected therewith, if so vaccinated, and if not so vaccinated such statement shall so show: *Provided*, That the board of health may require certificate of some duly qualified physician, that such teachers, pupils, employees, and other persons connected therewith have been successfully vaccinated within seven years preceding the date of such report, such certificate to give such description and other particulars as may be required by said board, same to be furnished on blanks to be provided by the city health officer.

SEC. 2. Whenever in the opinion of the board of health it is necessary for the public health or the health of any such place or institution of education set forth in section 1 of this ordinance that all or any of such teachers, pupils, employees, and other persons therewith connected be vaccinated for smallpox, said board may require such vaccination within such period of time and under such regulations as said board of health may require.

SEC. 3. Any person conducting any place or institution of learning who shall fail or refuse to furnish said list or statement provided for in section 1 of this ordinance when required by said board, or any person who shall knowingly make any false statement in any such list, statement, or physician's certificate provided for in said section 1, or any person whosoever, who shall fail to comply with the requirements of the board of health provided for in section 2 of this ordinance, shall be deemed guilty of a misdemeanor, and upon conviction thereof shall be fined in any sum not less than \$10 nor more than \$100 for such offense, and each

day that such offense continues shall constitute a separate offense, and upon failure to pay such fine, such person may be imprisoned, as provided for in the city charter.

SEC. 4. If any section or portion of this ordinance shall for any reason be declared invalid or unenforceable, nevertheless the remaining sections and portions of this ordinance shall remain in full force and effect and shall not be impaired thereby.

LAKE CHARLES, LA.

Pupils, Teachers, and School Employees—Smallpox Vaccination Required. Teachers and School Janitors Infected with Communicable Disease—Employment Prohibited. Teachers—Health Certificate Required Annually. Tuberculous Pupils—Exclusion from School. (Reg. Bd. of H., March 23, 1926)

SECTION 1. That all principals and other persons in charge of public, private, or other schools and colleges, located within the city limits of the city of Lake Charles, are prohibited from admitting any pupil, teacher, or employee to the school or schools under their charge or supervision, except on a proper certificate signed by a physician setting forth that such pupil, teacher, or employee has been successfully vaccinated within the preceding five years, or that he or she has had smallpox, or upon a proper certificate of a regularly licensed physician or the health officer to the effect that such pupil, teacher, or employee has been unsuccessfully vaccinated at least twice within the preceding year. Every person possessing such a certificate may, however, be examined by the city health officer, and such certificate revoked where such examination does not disclose evidence of immunity.

SEC. 2. That no person suffering from any communicable disease shall be employed as teacher or janitor in any school in this city. At the opening of each annual term teachers must furnish a health certificate from a registered and licensed physician of this State, addressed to the person in charge of said schools, certifying that they are not suffering from tuberculosis or any other communicable disease; said certificate to also show whether they have been successfully vaccinated within the preceding five years, had smallpox, or been unsuccessfully vaccinated at least twice within the preceding year.

SEC. 3. That no person, pupil, or child shall attend any school for instruction or be allowed to enter and associate with noninfected children on the grounds of said school for instruction if the records in the office of the health officer show that said person, child, or pupil is afflicted with pulmonary tuberculosis. When any such person, child, or pupil with the disease herein above mentioned is known by the health officer to be entering such school or grounds for instruction, it shall become his duty and he must forthwith instruct the superintendent of such school, or his representative, to exclude from school and grounds of said school, such person, pupil, or child.

SEC. 4. That the parent or guardian of any person, pupil, or child who has been excluded from school as provided in section 3 of this ordinance may, if he so desires, request in writing, to the superintendent of schools, for a special examination to be made as hereinafter provided. Upon receipt of such request the superintendent of the said school is hereby authorized and he shall cause to assemble a board, to be known as the school tuberculosis exclusion board, consisting of three regularly qualified practicing physicians of this city, one of whom shall be the family physician of the complainant, or a well-qualified physician, whose name shall have been presented by said parent or guardian of the child, and the second member of the said board shall be the health officer, or a well-qualified physician acting as his representative. It shall become the duty of the first and second members to meet, select, and agree upon a third member. This board shall make such examinations as they shall deem proper, and their findings shall be communicated in writing to the superintendent of the said school, who shall cause the person, pupil, or child to be readmitted to such school; provided that said tuberculosis exclusion board ordered said person readmitted.

SEC. 5. That any principal or person in charge of any school in this city offending against this ordinance shall upon conviction thereof be fined the sum of not less than \$10, nor more than \$25, for each offense, or imprisoned not less than 1 day nor more than 25 days, or both fined and imprisoned at the discretion of the court.

LONG BEACH, CALIF.**Certain Vessels—Rat Guards Required. (Ord. C-344, December 23, 1924)**

SECTION 1. It shall be unlawful for the owner, agent, master, or other officer in charge of any vessel, steamboat, or other water craft, except vessels, steamboats, or other water craft engaged in domestic commerce, to cause or permit said vessel, steamboat, or other water craft to lie alongside wharf or dock in the city of Long Beach, unless each chain, hawser, rope, or line of any kind extending from any such vessel, steamboat, or other water craft is equipped with and has properly and securely attached thereto in good working order a rat shield or guard of such design and in such a manner as shall be approved by the city health officer of the city of Long Beach.

SEC. 2. Any person violating any of the provisions of this ordinance shall be deemed guilty of a misdemeanor, and upon conviction thereof shall be punishable by a fine not exceeding \$500, or by imprisonment in the city jail for a period not to exceed six months. Any such owner, agent, master, or other officer in charge of any vessel, steamboat, or other water craft, shall be deemed guilty of a separate offense for each day during any portion of which any violation of any of the provisions of this ordinance is committed, continued or permitted by such owner, agent, master, or other officer, and shall be punishable therefor as herein provided.

Fumigation or Disinfection with Cyanide or Other Dangerously Poisonous Material—Permit—Regulation. (Ord. C-345, December 23, 1924)

SECTION 1. It shall be unlawful for any person, firm, or corporation, whether as owner, agent, employee, or otherwise, to fumigate or disinfect with cyanide, or other dangerously poisonous material, or to cause or permit to be fumigated or disinfected with cyanide, or other dangerously poisonous material, any house or other building, built or constructed for the habitation of human beings, unless under and by authority of a written permit from the city health officer of the city of Long Beach.

SEC. 2. Permits to carry on or engage in the business of fumigating or disinfecting may be issued by said city health officer upon the written application of any person for himself or on behalf of any corporation or association of persons, which application shall state the name and address of the applicant, together with any additional facts which may be necessary to enlighten said city health officer as to qualifications and fitness of said applicant. Any such permit may be revoked at any time hereafter by said city health officer, if he finds that such permittee, his employee, servant, agent, or other person acting with his consent or under his authority has violated, or caused the violation of, any ordinance of the city of Long Beach regulating the fumigation of houses or other buildings built or constructed for the habitation of human beings: *Provided, however,* That no permit issued under authority of this section shall be revoked until said city health officer has first given said permittee five days' previous notice in writing of his intention to so revoke such permit, during which time said permittee may be heard in his own defense before said city health officer.

SEC. 3. It shall be unlawful for any person, firm, or corporation to put or place, or cause to be put or placed, any cyanide, or other dangerously poisonous material, in any house or other building for the purpose of fumigating or disinfecting the same, unless written notice thereof has been given to the city health officer at least 24 hours in advance thereof stating the intention of such person, firm, or corporation to so put or place such cyanide, or other dangerously poisonous material, together with the exact location of said house, or other building, to be fumigated or disinfected.

SEC. 4. It shall be unlawful for any person, firm, or corporation to use or to cause or permit to be used any cyanide, or other dangerously poisonous material, to fumigate or disinfect any house or other building constructed or erected for the habitation of human beings unless a warning sign shall be first placed on the door or principal entrance to said house, or other building constructed or erected for the habitation of human beings, which said warning sign shall set forth the fact that said house or building is under fumigation or treatment, and shall plainly set forth the danger of breaking any seals or entering therein. Each word in said warning sign provided for by the terms of this section shall be set forth in letters of not less than 1 inch in height.

SEC. 5. Any person, firm, or corporation violating any of the provisions of this ordinance shall be deemed guilty of a misdemeanor, and upon conviction

thereof shall be punishable by a fine of not to exceed \$500, or by imprisonment in the city jail for a period of not exceeding six months.

LOS ANGELES, CALIF.

Plague—Prevention—Ratproofing of Buildings—Trapping of Rats—Prevention of Entrance of Rats from Vessels—Protection of Food and Other Products—Keeping and Disposal of Garbage, Refuse, etc. (Ord. 50282, November 21, 1924)

SECTION 1. It shall be unlawful for the owner, manager, or agent in charge of any building or premises, or any part thereof, between the hours of 9 o'clock a. m. and 5 o'clock p. m. of any day, to refuse admission to any officer, inspector, or other representative of the health department of the city of Los Angeles, when such officer, inspector, or other agent has announced his intention to enter said building or premises for the purpose of inspecting the same and ascertaining whether the provisions of this ordinance have been complied with by the owner or occupant of said building or premises.

SEC. 2. All building and basement walls of all storerooms, warehouses, residences or other buildings within the city, all chicken yards or pens, chicken coops or houses, and all barns and stables, shall be so constructed or repaired as to prevent rats from being harbored underneath the same or within the walls thereof, and all food products or other products, goods, wares, and merchandise liable to attract or to become infested or infected with rats, whether kept for sale or for any other purpose, shall be so protected as to prevent rats from gaining access thereto or coming in contact therewith. All storerooms, warehouses, residences, or other buildings in said city shall be provided by the householder or his agent with one or more traps of a pattern approved by the commissioner, which traps shall be freshly baited at least twice each week by the householder or his agent, and shall be inspected daily by the householder or his agent, and any rat or rats caught therein shall be killed and delivered to the health department, or its duly authorized deputy, or killed and then destroyed by burning, and such trap or traps thoroughly smoked and reset and rebaited by said householder or his agent.

SEC. 3. All public and private docks and wharves in the city, wherever located, shall be so protected as to prevent rats from gaining entrance to such docks or wharves, at either high or low tide, from vessels anchored or moored alongside of such docks or wharves, or from other sources, and all food products stored in docks or wharves shall be so kept and stored as to prevent rats from gaining access thereto or coming in contact therewith. All docks and wharves shall be provided with two or more traps of a pattern approved by the health commissioner; traps shall be freshly baited at least twice each week, and shall be inspected daily, and all rats caught therein shall be killed and delivered to the health department, or killed and then destroyed by burning, and such trap or traps shall be thoroughly smoked and reset and rebaited.

SEC. 4. All slaughterhouses of every kind and nature, and wherever located in the city, shall be so protected as to prevent rats from gaining access to the building or buildings thereof, and all holes and openings in the building or basement walls shall be thoroughly stopped with cement or other material approved by the health commissioner, and all food products stored in slaughterhouses shall be so kept as to prevent rats from coming in contact therewith.

All slaughterhouses shall have at least two traps, or as many more traps as may be required by the health commissioner, of pattern approved by said commissioner, which traps shall be baited with fresh bait at least twice a week, and such traps shall be inspected daily by the owners, lessees, or agents thereof, and all rats caught therein shall be killed and delivered to the health department, or killed and then destroyed by burning, and the trap or traps thoroughly smoked and reset and rebaited by said owners, lessees, or their agents.

SEC. 5. All buildings, places, and premises whatsoever in the city shall at once be placed, and shall continuously be kept by the owner or the occupant thereof, in a clean and sanitary condition, and free from rats.

SEC. 6. It shall be unlawful for any person, firm, or corporation to have or permit upon any premises owned, occupied, or controlled by him or it, any nuisance detrimental to health, or any accumulation of filth, garbage, decaying animal or vegetable matter, or any animal or human excrement; and it shall be the duty of the health commissioner of the city of Los Angeles to cause any such person, firm, or corporation to be notified to abolish, abate, and remove such nuisance, and in case such person, firm, or corporation shall fail, neglect, or

refuse to remove the same within one day after receiving such notice, such nuisance may be removed and abated under and by order of the health commissioner, and the person, firm, or corporation whose duty it was to abate or remove such nuisance, in addition to incurring penalties in this ordinance provided, shall become indebted to said city for the costs and charges incurred by said city by reason of the existence and removal of such nuisance.

SEC. 7. It shall be unlawful for any person, firm, or corporation to dump or place upon any land, or in any water or waterway, within said city, any dead animal, butchers' offal, fish or parts of fish, or any waste vegetable or animal matter whatever.

SEC. 8. It shall be unlawful for any person, firm, or corporation whether the owner, lessee, occupant, or agent of any premises to keep or permit to be kept in any building, area way, or upon any premises, or in any alley, street, or public place adjacent to any premises, any waste animal or vegetable matter, dead animals, butchers' offal, fish or parts of fish, swill, or any refuse matter from any restaurant, eating place, residence, place of business, or other building, unless the same be collected and kept in a tightly covered or closed metal can or vessel.

SEC. 9. No rubbish, waste, or manure shall be placed, left, dumped, or permitted to accumulate or remain in any building, place, or premises in said city so that the same shall or may afford food or a harboring or breeding place for rats.

SEC. 10. Any person, firm, or corporation violating or failing to comply with any of the provisions of this ordinance shall be deemed guilty of a misdemeanor, and upon conviction thereof shall be punished by a fine of not to exceed \$500, or by imprisonment in the city jail for a period of not to exceed six months, or by both such fine and imprisonment. Each such person, firm, or corporation shall be deemed guilty of a separate offense for each day during any portion of which any violation of any of the provisions of this ordinance is continued, committed, or permitted, and shall be punishable therefor as herein provided.

MILLVILLE, N. J.

Communicable Diseases—Reports of Cases—Placarding—Quarantine—Isolation—Fumigation—Regulations Authorized. (Ord. 285, March 12, 1926)

1. In all cases of communicable disease the attending physician shall notify the bureau of health and the bureau shall at once post proper cautionary cards or notices on the premises occupied by such patients. A quarantine of the patient and inmates of the house shall be immediately established and thereafter maintained for the period established in such case by the sanitary code of the department of health of the State of New Jersey heretofore, or hereafter to be, enacted, and until such quarantine is removed by order of the director of public safety. The failure of an attending physician to immediately and within 24 hours report to the bureau of health cases of communicable diseases attended professionally by such physician shall constitute a violation of this ordinance. The attending physician shall make prompt report of the recovery of any such patient from the sickness, accompanied by a proper certificate requesting that the quarantine against the premises be removed.

2. The bureau of health shall promptly post, or cause to be posted, proper cautionary notices or cards in all cases where communicable disease is found to exist in this city, and the posting of such notices by the bureau of health shall be notice to the patient and inmates of the house and the public that the premises are under quarantine. On receipt of notice from the attending physician that any such patient has recovered from such communicable disease the cautionary notice of contagious disease shall be taken down by the bureau of health and thereupon, on or after the maximum period of isolation specified in said State sanitary code and not before, the quarantine shall be deemed to have been removed from said premises.

3. During the term of any such quarantine the patient shall remain isolated and it shall be unlawful for any inmate of or person except attending physicians and nurses who shall go upon the said premises, to break quarantine by leaving such premises for any purpose whatsoever, except as permitted by said State sanitary code and the law.

4. When any said quarantine is removed the bureau of health shall immediately by its proper agents or the police cause the premises to be thoroughly fumigated. The bureau of health may employ the police force in maintaining any quarantine established by the bureau, or by the department of health of the State of New Jersey, and the breach of any quarantine so established in this city shall constitute a violation of this ordinance.

5. The director of public safety shall have authority to establish from time to time regulations not inconsistent with the State sanitary code, for the protection of the public against communicable diseases and for the enforcement of the provisions of said code and this ordinance; and the violation of any such regulation shall be deemed a violation of this ordinance.

6. All persons violating the provisions of this ordinance shall be punished by a fine not exceeding \$200 or be imprisoned in the county jail for a term not exceeding 90 days or both; the magistrate before whom any violator of this ordinance is convicted shall have power to impose any fine or term of imprisonment not exceeding the maximum fixed in this ordinance. In default of the payment of any fine imposed hereunder any person convicted of the violation of this ordinance may, in the discretion of the magistrate by whom he was convicted, be imprisoned in the county jail for any term not exceeding 90 days.

Communicable Diseases—Reports of Cases—Treatment—Attendance at Schools and Gatherings—Isolation—Quarantine—State Sanitary Code Requirements Effective as Local Regulations—Disinfection. (Reg. Bureau of H., August 19, 1926)

1. It shall be the duty of heads of families and of custodians of children having whooping cough, scarlet fever, measles, mumps, diphtheria, scarlatina, and other communicable diseases to report the same within 24 hours to the bureau of health, except where a physician is employed, in which case the physician shall report.

2. Parents, guardians, or other persons not indigent and who are custodians of infants having communicable diseases, shall furnish medical attendance and medical supplies for the care of such patients and pay for the same out of their private estate. Indigent patients shall be cared for by the city physician.

3. No parent or guardian or custodian of any infant shall permit their children or wards to attend any public or private school or church, theater, or moving picture place, or place of employment, or public gathering, while sick with any communicable diseases whatsoever.

4. It shall be the duty of teachers and principals of public schools to report immediately to the bureau of health cases of communicable diseases discovered by them to exist among their pupils.

5. Permits for isolation in part of a quarantine dwelling as permitted by regulation 14 of the Sanitary Code of the Department of Health of the State of New Jersey may be issued only by the health officer. The health officer may issue the same on application by the attending physician and certification by him that such partial isolation is in his opinion effective.

6. Regulation 14 of the Sanitary Code of the Department of Health of the State of New Jersey provides as follows:

"Persons not to be isolated or quarantined in certain cases.—When a person affected with a communicable disease is effectually isolated on the premises, the executive officer of the local board of health may, at his discretion, refrain from isolating or quarantining other members of the family or household in which such diseases may exist, who do not come in contact with the patient or his secretions or excretions, or with the nurse or other person caring for the patient."

Therefore, for the purpose of enforcing more effectually said regulation 14, no principal or teacher of the public schools shall receive any scholar, nor shall any employer of labor permit to work in his employ, any person residing at any premises where any such patient is isolated or quarantined from other members of the family under said regulation 14, except where such scholar or employee shall produce a permit issued by the bureau of health.

7. No assistant health inspector shall be employed or act except by authority of the board of commissioners.

8. The sanitary code enacted by the State Board of Health of the State of New Jersey is, and every of the provisions thereof are, adopted, and declared to be effective, as rules of the bureau of health of the city of Millville; and violation thereof shall be punished as a violation of the provisions of ordinance No. 285. Copies of the sanitary code will be distributed by the bureau upon request of persons interested.

9. All certificates of quarantine removal shall hereafter be issued by the secretary, upon proper certification of attending physicians and inspection and (when necessary) fumigation and disinfection of the premises.

10. Reports of cases of communicable diseases shall be made by physicians within 12 hours, pursuant to the provisions of section 1 of chapter 260 of the

Laws of 1895, and as required by ordinance No. 285, on blanks to be furnished by the secretary.

11. Where the provisions of regulation 14 are invoked, the reports shall be accompanied by certificate from the physician that the person affected with a communicable disease is effectually isolated on the premises.

12. A violation of these rules shall be deemed a violation of ordinance No. 285, as provided in section 5 of said ordinance.

PASADENA, CALIF.

Buildings Infested with Rats—Declared Public Nuisances—Abatement. (Ord. 2312, December 23, 1924)

SECTION 1. All buildings, structures, or parts thereof that are infested with rats are hereby declared to be and are public nuisances, and the health officer of the city of Pasadena is hereby authorized and empowered to abate the same in the manner provided in this ordinance.

SEC. 2. Whenever the health officer of the city shall find that any building or structure or part thereof is infested with rats, he shall notify the owner, person in charge, or occupant thereof in writing, setting forth the condition complained of, and specifying wherein such building, structure, or part thereof must be altered or that such building, structure, or part thereof must be demolished, as the case may be, in order to destroy the hiding places of rats and to prevent the breeding and propagation of rats, and requiring such owner, person in charge, or occupant thereof, forthwith to make such alteration therein or to demolish said building, structure, or part thereof, as the case may be, in order to destroy the hiding places of rats, and to prevent the breeding and propagation of rats and specifying with reasonable certainty the work necessary to that end, and the time within which said work must be completed.

The owner, person in charge, or occupant of any such building, structure, or part thereof, upon whom notice has been served, as herein provided, shall be entitled to appeal from said finding of the health officer by making such appeal in writing to the board of directors of this city within 72 hours after receiving said notice, and said appeal shall be heard at the next regular meeting of the board of directors. It shall be the duty of the owner, person in charge, or occupant of any such building, structure, or part thereof, upon whom notice has been served as herein provided to commence to comply with the terms of the order contained in the notice herein mentioned within 72 hours after receipt of said notice, or with the terms of the order as so modified, in the event that the board of directors modifies said order, within 72 hours after notice of the decision of said board of directors, and to prosecute diligently to completion and to complete within the time specified in the said notice given by said health officer, or within the time specified in the decision of said board of directors if the time for the completion thereof is fixed or altered in said order of said board.

It shall be unlawful for any person, firm or corporation to fail to comply with the provisions of this section, or to use or permit to be used any building, structure, or part thereof respecting which any work is ordered done as herein provided, before or during the time of performance of said work, unless permission in writing therefor is given by the health officer, and it shall be unlawful to use or permit to be used any building, structure, or part thereof, as to which notice is given as herein provided, after the date fixed for the completion of said work in said notice given by the health officer, or as such date may be modified in the order of the board of directors, unless all work has been done upon such building, structure, or part thereof as required by said notice or said order.

SEC. 3. In the event that any person, firm, or corporation to whom or which notice has been given as provided by this ordinance and who or which shall fail to comply with the terms of such notice or such order of the board of directors in case appeal is taken to said board of directors, within the time stated in said notice or in said order of the board of directors, as the case may be, the board of directors may order the health officer to perform whatever work upon such structure, building, or part thereof as is necessary to comply with the terms of said notice or said order of the board of directors, as the case may be, and said health officer shall thereupon be authorized to perform such work and to incur the necessary expense in connection therewith not exceeding the sum of \$500, and such necessary expense shall be paid upon demands regularly made and allowed out of the appropriate department of the general fund: *Provided; however,* Whenever a larger

expenditure is necessary to be made in connection with such work the board of directors may by motion appropriate such larger sum or sums as may be necessary for such purpose. Upon the completion of said work, the health officer shall prepare a sworn statement showing the cost thereof and report the same to the board of directors, and the board of directors shall fix a time and place of hearing upon the matter of the expense in connection with such work and shall give notice to the owner or person in control of such structure, building, or part thereof, which time shall be not less than five days from the date of fixing such time. The owner or person in control shall be entitled to protest and be heard upon the matter of the expense of such work, but the decision of the board of directors thereon shall be final and conclusive. The board of directors shall order the city assessor to enter the amount so found as the necessary expense in connection with such work, upon the assessment roll of the city against the real property charged, for the following fiscal year, unless said expense shall have been paid by such owner or person in control, and upon the entry thereof upon such assessment roll, said amount shall become a lien against said real property and shall be collected at the same time and in the same manner as city taxes.

ST. PAUL, MINN.

Business of Generating or Releasing Poisonous Fumes, Gases, or Vapors for Extermination of Rodents, Insects, or Other Vermin—License—Liability Insurance Policy or Indemnity Bond Required of Licensee—Requirements Governing Extermination. (Ord. 6626, January 26, 1926)

SECTION 1. It shall be unlawful for any person, copartnership, association, or corporation (other than an official or employee of the department of public safety of the city of St. Paul, in the course of official duty), to engage in the business of generating or releasing in any house, building, structure, or other inclosed space (each and all of which are for convenience hereinafter referred to as "structure") or in any part of any of the same, within the city of St. Paul, any poisonous fumes, gases, or vapors, for the purpose of exterminating therein rodents, insects, or other vermin, without first having applied for and secured a written license from the health officer of the city of St. Paul, authorizing him, them, or it so to do, and then only while such license shall remain in force and effect.

SEC. 2. Such person, copartnership, association, or corporation shall make application to said health officer for such license on forms to be prepared and furnished by said health officer. Such application, in the case of an individual applicant, shall set forth his or her name and address; in the case of a copartnership or association, the names and addresses of the copartners, associates, or members; in the case of a corporation, the names and addresses of its officers; and if applicant operates under a trade name, the complete and full trade name and the names and addresses of the person or persons doing business under such trade name. Such application shall also set forth the place of business of said applicant, applicant's experience, if any, in the use of poisonous fumes, gases, or vapors for the purposes of exterminating rodents, insects, or other vermin, and such additional facts or information as said health officer may require in order to enlighten him concerning the qualification of the applicant for the purposes in question.

SEC. 3. No person, copartnership, association, or corporation shall be so licensed by said health officer unless he, they, or it, shall be competent, qualified, and experienced, by reason of possessing adequate and sufficient knowledge of the use, with safety to the public, of poisonous fumes, gases, and vapors used for exterminating rodents, insects, or other vermin.

SEC. 4. Upon the filing with said health officer of such application, he shall forthwith investigate, by conducting examinations or otherwise, as to the competency, qualification, and experience of the applicant to so exterminate with safety to the public. If such applicant is competent, qualified, and experienced, by reason of possessing adequate and sufficient knowledge of the use, with safety to the public, of poisonous fumes, gases, and vapors, for exterminating rodents, insects, or other vermin, the health officer shall, subject to the remaining provisions of this ordinance, issue a license to such applicant; otherwise he shall decline to issue such license.

SEC. 5. No such license shall be issued until and unless the applicant shall have obtained a policy of liability insurance, or an indemnity bond of the character hereinafter described, nor until and unless such policy or bond shall be approved as to form by the corporation counsel of the city of St. Paul and shall

have been filed with the city comptroller of the city of St. Paul. Upon filing with said city comptroller of said policy or bond the latter shall forthwith deliver a receipt therefor to said applicant. Said policy or bond shall be issued by an insurance company, or by a surety company, as the case may be, authorized by the laws of Minnesota to do business in said State, which policy or bond shall insure or indemnify, as the case may be, said applicant in the sum of \$7,500, for the uses and purposes hereinafter set forth. Said policy or bond shall provide for the payment of any judgment or judgments obtained against said applicant, not exceeding in the aggregate said sum of \$7,500, by any person or persons who shall or may suffer or sustain injuries by reason of any unlawful or negligent act or omission of the applicant, or his agents, servants, or employees, in connection with any extermination done or effected by said applicant within the city of St. Paul, and for the payment of any judgment or judgments obtained against said applicant by the personal representative or personal representatives of any person or persons killed by reason of any unlawful or negligent act or omission of the applicant, or of his agents, servants, or employees, in connection with any extermination done or effected by said applicant within the city of St. Paul. Such policy or bond shall contain a condition that it can not be canceled after loss, and also a condition that it can not be canceled without 10 days written notice transmitted by registered mail to the health officer of the city of St. Paul, addressed to him at his office. In case of cancellation of such policy or bond, the license which may have been issued to the person, copartnership, association, or corporation whose policy or bond shall be so canceled, shall, by virtue of such cancellation of such policy or bond, become inoperative and void as of the date when such cancellation becomes effective: provided, nevertheless, that if another policy or bond, in like sum and similarly conditioned, shall, within 10 days, thereafter be obtained, approved, and filed in lieu of said canceled policy or bond, said license shall be reinstated for the balance of the term of said license, unless said license shall be revoked or suspended by said health officer pursuant to the provisions of section 8 of this ordinance. If said health officer shall deem any policy or bond, referred to in this section, to be unsatisfactory or insufficient for any reason, he may require said licensee to replace the same with one of like sum, and similarly conditioned within 10 days from the date of any order which said health officer may make in that behalf; and if said licensee shall default or refuse so to do said license may be revoked by said health officer.

SEC. 6. All licenses herein provided for shall be for a period of one year from the date when they, respectively, shall be issued. The fee for the issuance of any such license shall be \$25 which shall be paid to the commissioner of finance of the city of St. Paul, who shall forthwith deliver a receipt therefor to said applicant.

SEC. 7. In the event that said health officer shall, within the provisions of this ordinance, be satisfied as to the competency, qualification, and experience of an applicant, he shall forthwith transmit to said applicant a notice to the effect that license will be issued provided said applicant shall, within 30 days from the date of such notice, file with said city comptroller such policy or bond, so conditioned and approved, and if such applicant shall pay to the commissioner of finance said license fee. Said license shall be issued and delivered to said applicant if, within said 30-day period, said applicant shall exhibit to said health officer the receipt of the city comptroller referred to in section 5 of this ordinance, and the receipt of the commissioner of finance, referred to in section 6 of this ordinance.

SEC. 8. If any license granted under the authority of this ordinance has been violated by any licensee, or by his, their, or its employees, servants, agents, or other persons acting with his, their, or its consent or under his, their, or its authority, said health officer shall have power either to revoke or to suspend said license or to refuse to renew any license theretofore granted to such licensee.

SEC. 9. It shall be unlawful for any person, copartnership, association, or corporation to put or to place, or to any cause or to permit to be put or placed, any materials capable of producing any poisonous fumes, gases or vapors in any "structure" within the City of St. Paul, for the purpose of exterminating therein rodents, insects, or other vermin, unless written notice shall have been given by or on behalf of such person, copartnership, association, or corporation to said health officer at least 24 hours in advance of the time when the extermination shall commence; which notice shall state the intention of said person, copartnership, association, or corporation to so exterminate, the exact character and use of the "structure" in respect of which such extermination is intended to be performed, and the date when such extermination will be commenced; nor unless

written notice of like tenor shall be given by or on behalf of such person, copartnership, association, or corporation, to chiefs of the fire and police bureaus of the city of St. Paul, at least 24 hours in advance of the time when the extermination will commence.

SEC. 10. Before any such extermination shall be actually commenced, the person in charge or control thereof shall make a personal and careful examination and inspection of every part of said "structure" in which any such extermination is to be performed; and if he shall find any person therein, he shall personally and carefully advise such person of the work about to be done, and of the dangers attendant upon remaining therein, or in any part thereof, and of the time when such work will begin and when the same will terminate. No such extermination shall commence until such person so advised has actually left such "structure," and until such person in charge or control of such extermination shall be certain that no person remains therein. Nor shall any such extermination commence until such person in charge or control of such extermination shall have taken or caused to be taken all necessary precautions to safeguard the lives and health of any and all persons occupying such "structure" adjoining that in which said extermination is to be performed.

SEC. 11. Before any such extermination shall be actually commenced, the licensee shall post or place, or cause to be posted or placed, conspicuously on all outside entrances to such "structure" in which any such extermination is to be performed, and shall cause to remain so posted and placed until after said extermination is completed, and until said "structure" is properly ventilated and shall again be safe for human occupancy, plainly legible signs printed in red ink on white cardboard, with letters to be at least 1 inch in height, which signs shall read as follows:

DANGER

Extermination in this place is being performed with a poisonous gas

DEADLY GAS

All persons warned to keep away

At night such signs shall be illuminated or lighted in such manner as to make the reading matter thereon plainly legible.

SEC. 12. Before any such extermination shall be actually commenced, the licensee shall cause to be stationed, and shall cause to remain stationed until after said extermination shall be completed, and until said "structure" is properly ventilated and shall again be safe for human occupancy, at all entrances to such "structure," such number of capable, alert watchmen as shall be sufficient, whose duty it shall be to warn any person or persons about to enter such "structure," of the dangerous condition about to be created therein, and to keep such person or persons from entering the same.

SEC. 13. After said examination shall have been completed, the licensee shall release or cause to be released the fumes, gases, or vapors created thereby in a careful manner, and in such a way that in their transmission to the outside air life or health shall not be endangered.

SEC. 14. In the event that any section or provision of this ordinance shall be held invalid by any court of competent jurisdiction, such adjudication and invalidity shall not be construed or held to make invalid or ineffectual any other section or provision of this ordinance.

SEC. 15. *Penalty.*—Any person, copartnership, association, or corporation violating the provisions of this ordinance shall be guilty of a misdemeanor, and upon conviction thereof, shall be punished by a fine of not less than \$25 nor more than \$100, or by imprisonment in the workhouse for not less than 10 days nor more than ninety days.

SPRINGFIELD, MO.

Communicable Diseases—Reports of Cases—Placarding—Quarantine—Funerals—Contacts—Carriers—Closing of Schools or Places of Public Assemblage—Care of Needy Quarantined Persons—Handling and Sale of Milk and Other Food—Attendance at Schools and Public Gatherings—Terms Defined—Isolation—Disinfection—Control Measures for Specific Diseases. (Ord. 13431, December 19, 1924)

SECTION 1. Reportable diseases enumerated.—The following diseases are hereby declared for the purpose of this ordinance to be infectious, contagious, communicable or dangerous in their nature. Their existence in the city of Springfield,

Mo., shall be reported to the commissioner of health and sanitation as hereinafter provided: Anthrax, cerebrospinal meningitis (epidemic), chicken pox, cholera (Asiatic), diphtheria (membranous croup), epidemic or septic sore throat, glanders, influenza, leprosy, measles, mumps, ophthalmia neonatorum (conjunctivitis of the new born), plague, poliomyelitis, acute anterior (infantile paralysis), rabies, scarlet fever, smallpox, tetanus, trachoma, tuberculosis (pulmonary and other forms), typhoid fever, typhus fever, whooping cough.

SEC. 2. Physicians to report cases.—Whenever any physician, or any other person permitted to practice healing by the state board of health, knows or has reason to believe or suspect that any person in the city of Springfield, Mo., under his care, or for whom he shall prescribe or attend, is infected or has an infectious, contagious, communicable, or dangerous disease, such physician or person shall immediately, after discovering such disease, make a report thereof to the commissioner of health and sanitation. Such reports shall be by telephone when practicable, and on blanks furnished by the commissioner of health and sanitation for that purpose, and shall give name, residence (street and number) of person, date of attack, and character of the disease. Telephone reports shall be confirmed in writing within 12 hours.

SEC. 3. Blanks furnished.—The commissioner of health and sanitation shall furnish the proper blank forms on which reports required by this ordinance shall be made.

SEC. 4. Hotel and boarding house keepers to report cases.—The keeper or keepers, clerk or clerks of any hotel or boarding house, owner or owners, lessee or lessees, agent or agents, of any building or other premises in the city of Springfield, Mo., knowing, suspecting, or being apprised or informed that a person in their hotel, boarding house, building, or other premises has an infectious, contagious, communicable, or dangerous disease, shall report same immediately to the commissioner of health and sanitation, stating the name, residence (street and number) of such person.

SEC. 5. Head of family to report cases.—Whenever any householder in the city of Springfield, Mo., knows or has reason to believe that any person in such household is infected with any infectious, contagious, communicable, or dangerous disease, provided no physician is in attendance, such householder shall forthwith give notice thereof to the commissioner of health and sanitation, who shall diagnose the case or have same done without charge.

SEC. 6. School authorities to report cases.—Whenever any superintendent, principal, teacher, or board of directors of any school in the city of Springfield, Mo., knows or has reason to believe that any pupil or teacher of such school is infected with an infectious, contagious, communicable, or dangerous disease, such fact shall immediately be reported to the commissioner of health and sanitation; and said pupil or teacher shall be excluded from said school and shall not be permitted to return thereto except upon proper certificate from the commissioner of health and sanitation, certifying that said building or premises have been properly cleaned or disinfected, or that there is no longer danger of contagion or infection from such person.

SEC. 7. Duty of commissioner of health and sanitation to investigate.—Whenever the commissioner of health and sanitation is informed or has reason to believe that there is a case of infectious, contagious, communicable, or dangerous disease within the city of Springfield, Mo., he shall, either in person or through an authorized representative, immediately examine into the facts and shall adopt the quarantine or employ the sanitary measures as hereinafter prescribed.

SEC. 8. Establishment of quarantine.—Whenever the commissioner of health and sanitation shall have knowledge or shall suspect the existence of any infectious, contagious, communicable or dangerous disease within the city of Springfield, Mo., he shall either in person or through an authorized representative immediately institute and enforce the measures of control as are hereinafter provided. He shall cause to be posted on the premises wherein there exists a case of an infectious, contagious, communicable, or dangerous disease, required by this ordinance to be placarded, a card bearing the word "Quarantine" followed by the name of the disease printed in bold type, not less than 2 inches in height, each card to be attached on a conspicuous part of the building or other premises to warn any person approaching such place.

SEC. 9. Removal of quarantine.—Upon the termination of an infectious, contagious, communicable, or dangerous disease the physician last attending the person shall report the fact of the termination of such disease to the commissioner of health and sanitation. No person, except the commissioner of health and sanitation or an authorized representative, shall remove any quarantine placard, or release any person from quarantine in the city of Springfield, Mo.,

without specific instructions from the commissioner of health and sanitation. The provisions of this ordinance shall be deemed to have been violated if a quarantine placard attached or placed on any building or other premises in the city of Springfield, Mo., as provided in this ordinance, is defaced, mutilated, covered up, removed, or altered in any way, without authority of the commissioner of health and sanitation; and such alteration, destruction, or removal shall be considered evidence that such quarantine placard was altered, destroyed, or removed by the occupant or persons having possession or control of said building or other premises on which said quarantine placard was or had been attached or placed.

SEC. 10. *Funeral of person dead of contagious disease not to be public.*—No public funeral shall be held in the city of Springfield, Mo., over the remains of any person who has died of diphtheria, scarlet fever, poliomyelitis, cerebrospinal meningitis (epidemic) or smallpox; nor shall the body of such person be taken into any church, chapel, or other public place in said city. The funerals of those persons dying of those diseases, shall be strictly private and any person whose presence is not necessary shall not be present. It shall be the duty of the undertaker to warn families in case of death from any of the above diseases against a public funeral and no undertaker shall conduct a funeral in the city of Springfield, Mo., in violation of the terms of this provision.

SEC. 11. *Contacts, carriers, and suspects.*—Any person in the city of Springfield, Mo., who has been exposed to an infectious, contagious, communicable, or dangerous disease, or who is known to be a "carrier" of infection, may be placed under such quarantine restrictions as may be deemed necessary by the commissioner of health and sanitation until the nature of the disease has been determined or until danger to the public from the infectiousness of disease has passed or ended.

SEC. 12. *Obstructing health officer.*—No person shall interfere with or obstruct the entrance or exit to any building or other premises or the inspection or examination of any occupant thereof in the city of Springfield, Mo., by the commissioner of health and sanitation or an authorized representative in the proper discharge of his official duties in enforcing the provisions of this ordinance.

SEC. 13. *To close schools or other public assemblages.*—Whenever there exists an epidemic of any infectious, contagious, communicable, or dangerous disease in the city of Springfield, Mo., the commissioner of health and sanitation, in order to prevent the spread of such disease, may order the closure of all schools and other places of public assemblage, for such time as he may deem necessary, and it shall be the duty of the school officers, or other responsible person, to comply with such order, provided that in case the necessity for such an order is questioned, the State board of health may be appealed to for confirmation or revocation of the order.

SEC. 14. *Quarantine of persons in need.*—Whenever a person under quarantine in the city of Springfield, Mo., is, in the opinion of the commissioner of health and sanitation, unable to obtain medical care, food, or other actual necessities, it shall be the duty of the commissioner of health and sanitation to supply such quarantined person or persons with medical attention, food, and other actual necessities, and the expense incurred in performing such duty shall constitute a legal expense of said commissioner of health and sanitation.

SEC. 15. *Sale of milk and food prohibited.*—The sale or distribution of milk or other food products in the city of Springfield, Mo., from premises upon which there exists an infectious, contagious, communicable, or dangerous disease is strictly prohibited. No milk bottles shall be removed by any dairyman from the premises upon which there exists an infectious, contagious, communicable, or dangerous disease.

SEC. 16. *Exclusion from school for special disease.*—In addition to the diseases hereinbefore declared by this ordinance to be reportable, any child shall be excluded from any private, parochial, or public school in the city of Springfield, Mo., who is infected with any of the following diseases. Contagious conjunctivitis, impetigo contagiosa, pediculosis (lice), ringworm, scabies (itch), or any suppurative disease of a foul or offensive nature. The commissioner of health and sanitation shall have power upon receipt of information from any source that a case of any disease included in this section exists on any premises, to go to such premises and make an investigation concerning such report and to adopt such measures as may be deemed necessary in the protection of the public health.

SEC. 17. *Definitions and general measures.*—For the purpose of this ordinance the following definitions are adopted and shall apply:

Quarantine.—"Quarantine" shall be defined to mean and include the limitation of freedom of movement of persons and animals who are known or reasonably

suspected to have been exposed to an infectious, contagious, communicable, or dangerous disease.

Isolation.—"Isolation" shall be defined to mean and include the separating of persons suffering from an infectious, contagious, communicable, or dangerous disease, or carriers or possible carriers (such as immediate attendants on the sick) of the infecting organism, or agent, from other persons, in such places and under such conditions as will prevent the direct or indirect conveyance of the infectious agent to susceptible persons or animals.

Premises.—The term "premises" shall be defined to mean and include that area in which the diseased person and others must be confined, or any building or dwelling, public or private, in the city of Springfield, Mo. Where fields, yards, and porches are considered by the commissioner of health and sanitation to be situated as to not endanger the public, liberty may be given to use them.

Contacts.—A "contact" shall be defined to mean and include a person or animal known to have been sufficiently near to a human infected person or animal to have been exposed to the transfer of infectious material directly, or to articles freshly soiled with such material.

Householder.—The term "householder" shall be defined to mean and include the parents, guardians, or caretakers of children or minors, or other persons who have charge of the household where a number or group of persons dwell together or have their lodging or board together, and the keeper, superintendent, or manager of any jail, hospital, camp, or other institution.

Carrier.—A "carrier" shall be defined to mean and include any person who is known to harbor upon or within the body of said person the bacilli, virus, or other infective agent of any infectious, contagious, communicable, or dangerous disease and, while manifesting no symptoms of such disease, is capable of transmitting it to others.

Susceptibles.—A "susceptible" shall be defined to mean and include any person or animal which is not known to have become immune to the particular disease in question by natural or artificial process.

Disinfection.—"Disinfection" shall be defined to mean and include the destroying of vitality of pathogenic organism or other infectious agent, by chemical means or by heat.

(a) When the word "concurrent" is used as qualifying disinfection, it shall mean the application of disinfection immediately after the discharge from the body of an infected person of infectious material, or of articles soiled with such infectious discharges.

(b) When the word "terminal" is used as qualifying disinfection, it shall mean the process of rendering the person, clothing, and immediate physical environment of patients, carriers, or contacts, free from the possibility of conveying infection to others at the time when the patient, carrier, or contact is no longer a source of infection.

Cleansing.—The term "cleansing" shall be defined to mean and include the removal, by scrubbing and washing, of organic matter on which, and in which, an infectious agent may find favorable conditions for prolonging life and virulence.

Sec. 18. Procedure for control of reportable diseases.—The following rules regulating the procedure to be observed in the control of infectious, contagious, communicable, or dangerous diseases in the city of Springfield, Mo., are hereby adopted and shall be enforced by the commissioner of health and sanitation:

RULE 1. Anthrax.—Every case of anthrax shall be subject to the following procedure:

- (a) Placarding of the premises shall not be required.
- (b) The patient shall be isolated until all lesions have healed.
- (c) Concurrent disinfection by burning of all discharges from lesions or articles soiled therewith shall be practiced. Terminal disinfection of the premises shall be required.

RULE 2. Meningitis.—Every case of cerebrospinal meningitis (epidemic) shall be subject to the following procedure:

- (a) The premises shall be placarded.
- (b) The patient shall be isolated and contact with all others except physicians and nurse prohibited for a minimum period of two weeks from onset of disease and for one week after fever has subsided.
- (c) Persons from households in which the disease exists shall not attend school or places of public assemblage for 14 days after last contact with patient. Adult wage earners may continue their vocation (if the patient is properly isolated) if their employment does not bring them in contact with children, and if it be such as to keep them in the open air.

(d) Concurrent disinfection of nose and throat discharges and terminal cleansing of the premises shall be required.

(e) Efficient screening shall be employed to prevent access of insects to the patient or discharges.

(f) The sale of milk or foods from infected premises or by persons in infected households is expressly prohibited.

RULE 3. *Chicken pox.*—Every case of chicken pox shall be subject to the following procedure:

(a) The premises shall be placarded.

(b) The patient shall be confined to the premises until all skin lesions are healed completely and scabs or scales are shed.

(c) Susceptible children in the infected household shall be confined to the premises for 16 days after date of last exposure. Adults in the household or persons immune by reason of previous attack are subject to no restrictions.

(d) Since chicken pox in adults occurs rarely, but is more frequently a mistaken diagnosis of smallpox, it is hereby required that all cases in adults called "chicken-pox" shall be subject to the same procedure as prescribed in rule 17 for smallpox.

(e) Concurrent disinfection of articles soiled by discharges from lesions and terminal cleansing and disinfection of the premises shall be required.

RULE 4. *Cholera.*—Every case of cholera (Asiatic) shall be reported immediately by wire to the State board of health by the commissioner of health and sanitation and shall be subject to the special instructions issued for its care.

RULE 5. *Diphtheria.*—Every case of diphtheria (membranous croup) shall be subject to the following procedure:

(a) The premises shall be placarded.

(b) The patient shall be isolated until all discharges from nose, throat, ears, ulcers, abscesses or wounds have ceased, and until temperature has been restored to normal: *Provided*, That no patient shall be released from isolation or quarantine until two successive cultures from throat and nose taken at least 24 hours apart contain no diphtheria bacilli, such cultures not to be taken until at least nine days after onset, and said cultures shall be examined by the city bacteriologist, who shall immediately report results to the commissioner of health and sanitation. Culture tubes will be furnished and examinations made free of charge.

(c) All persons in an infected household shall be confined to the premises unless proven not to be infectious by at least one negative culture for nose and throat, in which case they may be permitted to take up a residence elsewhere.

(d) All contacts with a case of diphtheria shall be quarantined for a period of seven days unless proven not to be infectious by at least one negative culture from nose and throat. The commissioner of health and sanitation shall determine what constitutes contact in each individual instance.

(e) The sale or distribution of milk or food from infected premises or by persons exposed to infection is expressly prohibited.

(f) Concurrent disinfection shall be required of all discharges and of all articles which have been in contact with the patient. Terminal disinfection of the premises shall be required.

RULE 6. *Septic sore throat.*—Every case of epidemic or septic sore throat shall be subject to the following procedure:

(a) Placarding of the premises shall not be required, but every patient shall be isolated and nose and throat discharges disinfected.

(b) The sale or distribution of milk or food from infected premises or by persons in contact with the disease is expressly prohibited.

RULE 7. *Glanders.*—Every case of glanders shall be subject to the following procedure:

(a) Placarding of the premises shall not be required, but every patient shall be isolated and the discharges disinfected until recovery is complete.

RULE 8. *Influenza.*—Every case of influenza shall be subject to the following procedure:

(a) Placarding of the premises shall not be required, but every patient shall be confined to the premises and shall conform to any additional regulation deemed necessary by the commissioner of health and sanitation.

RULE 9. *Leprosy.*—Every case of leprosy shall be reported immediately by wire to the State board of health by the commissioner of health and sanitation, and shall be subject to the special instructions issued for its care.

RULE 10. *Measles.*—Every case of measles shall be subject to the following procedure:

(a) The premises shall be placarded.

(b) The patient shall be confined to the premises for a minimum period of five days after the appearance of the rash and until all discharges from the nose, throat, and ears have disappeared and cough has ceased, and until fever has disappeared.

(c) Susceptible children and adults in infected households shall not attend school or public gatherings for 14 days from the last exposure. Immune contacts are subject to no restrictions.

(d) Concurrent disinfection of all articles soiled with nose and throat secretions and terminal cleansing and disinfection of the premises shall be required.

RULE 11. Mumps.—Every case of mumps shall be subject to the following procedure:

(a) The premises shall be placarded.

(b) The patient shall be confined to the premise for a minimum period of 14 days after onset of the disease and for one week after disappearance of swelling.

(c) Contacts in a household are subject to no restrictions, provided they are entirely separated from the patient, and provided they agree to report immediately to the commissioner of health and sanitation at the appearance of the first suspicious symptom.

(d) Concurrent disinfection shall be practiced for all articles soiled with nose and throat discharges and terminal cleansing of the premises shall be required.

RULE 12. Ophthalmia neonatorum.—Every case of ophthalmia neonatorum (conjunctivitis of the newborn) shall be subject to the following procedure:

(a) Placarding of the premises shall not be required, but all articles soiled with eye discharges of the patient shall be disinfected, and such other regulations observed as deemed necessary by the commissioner of health and sanitation.

RULE 13. Plague (bubonic or pneumonic).—Every case of plague (bubonic or pneumonic) shall be reported immediately by wire to the State board of health by the commissioner of health and sanitation, and shall be subject to the special instructions issued for its care.

RULE 14. Poliomyelitis.—Every case of poliomyelitis, acute anterior (infantile paralysis) shall be subject to the following procedure:

(a) The premises shall be placarded.

(b) The patient shall be isolated from contact with all others, except physician and nurse, for not less than two weeks from date of onset and until temperature has returned to normal.

(c) Contacts in the household shall be confined to the premises for a period of 14 days from last contact, except that the adult wage-earners, if the patient is properly isolated, may continue their vocations, provided their employment does not bring them in contact with children.

(d) Concurrent disinfection of all discharges shall be practiced and terminal cleansing of the premises shall be required.

(e) The patient's room shall be effectively screened against all insects.

(f) The sale of milk or food from infected premises is expressly prohibited.

RULE 15. Rabies.—Every case of rabies shall be subject to the following procedure:

(a) Placarding of the premises shall not be required.

(b) Isolation is not required but the attendants shall be warned of the possibility of inoculation by human virus.

(c) Concurrent disinfection of saliva of patients and articles soiled therewith, and terminal cleansing of the premises shall be required.

NOTE.—Every biting or snapping dog may have rabies and shall be securely locked up for observation for a period of not less than 20 days, and such other regulations as prescribed by the commissioner of health and sanitation shall be observed. If symptoms of rabies develop, the dog shall be killed, and the head immediately examined for confirmation.

RULE 16. Scarlet fever.—Every case of scarlet fever is subject to the following procedure:

(a) The premises shall be placarded.

(b) The patient shall be isolated and contact with all others, except physicians and nurse, prohibited for a minimum period of 28 days after onset and until all discharges from nose, throat, and ears have ceased and the temperature has returned to normal.

(c) All persons in households where cases exist shall be confined to the premises: *Provided*, That if such persons take a residence elsewhere they may be released from the quarantine restrictions after an isolation period of seven days from the last contact.

(d) All persons exposed through contact with one ill with the disease shall be quarantined for a period of seven days from date of last contact. The commissioner of health and sanitation shall determine what constitutes exposure or contact.

(e) No patient or contact shall be permitted to handle any article of food intended for public consumption, sale, or distribution until the expiration of all quarantine or isolation periods, and until the commissioner of health and sanitation shall have pronounced said person to be noninfectious. The sale of milk or foods from infected premises is expressly prohibited.

(f) Concurrent disinfection of all articles in contact with the patient and all articles soiled with discharges of the patient shall be practiced. Terminal cleansing and disinfection of the premises shall be required.

RULE 17. *Smallpox.*—Every case of smallpox is subject to the following procedure:

(a) The premises shall be placarded.

(b) Patients afflicted with the disease shall be isolated and contact with all others, except physician and nurse, shall be prohibited, until all skin lesions are completely healed and all scabs and scales are shed.

(c) All persons exposed to the disease who have not had the disease or who have not been successfully vaccinated within two years shall be confined to the premises for 21 days after date of last exposure: *Provided*, That if all such persons shall undergo successful vaccination and refrain from contact with the patient, they may be released from such restrictions, to take up residence elsewhere.

(d) The commissioner of health and sanitation shall determine what constitutes contact or exposure, and successful vaccination in such individual instances.

(e) The sale of milk or food from infected premises is expressly prohibited.

(f) The commissioner of health and sanitation shall have authority by rule and regulation to make and impose any additional restrictions or measures for control of the disease as shall be deemed necessary.

(g) Concurrent disinfection of all discharges and articles soiled therewith shall be practiced.

(h) Terminal cleansing and disinfection of the premises shall be required.

RULE 18. *Tetanus.*—Every case of tetanus shall be subject to the following procedure:

(a) Placarding, isolation, or disinfection of the premises is not required, but terminal cleansing of the premises shall be practiced.

RULE 19. *Trachoma.*—Every case of trachoma shall be subject to the following procedure:

(a) Placarding of the premises shall not be required.

(b) Persons suffering from trachoma shall not be permitted to attend any public, private, or parochial school, or to handle food for public consumption, unless under the close supervision of a competent physician who shall certify in writing to the commissioner of health and sanitation that the case is not contagious.

RULE 20. *Tuberculosis.*—Every case of tuberculosis (pulmonary and other forms) shall be subject to the following procedure:

(a) The commissioner of health and sanitation shall regard all reports of cases as confidential and not open to inspection by the general public.

(b) Placarding or quarantine shall not be required: *Provided*, That when persons afflicted with tuberculosis endanger the public health by ignoring or violating repeatedly the sanitary rules imposed by these regulations, the commissioner of health and sanitation shall placard the premises so that the public may be warned of the presence of the disease.

(c) All clinically diagnosed cases of tuberculosis shall be regarded as infectious until six consecutive specimens at 48-hour intervals, properly collected and examined shall prove negative.

(d) In all known infectious cases of tuberculosis the commissioner of health and sanitation shall, through the attending physician, and if no attending physician, then personally, insure that the patients and their attendants are furnished with sanitary instructions for the prevention of infection of others.

(e) All sputum of such cases must be received in a sputum cup, or cloth, or paper napkin which can be burned. All surgical dressings removed from a tuberculosis lesion must be burned.

(f) All hospitals or other institutions accepting for treatment or care any person suffering from tuberculosis shall provide separate quarters, rooms, or wards for such cases, and such quarters, rooms, or wards shall not be used for the treatment or care of other persons until they have undergone thorough

cleansing and disinfection. In all such hospitals or other institutions, separate bedding, towels, dishes, and nappery must be provided for every tuberculosis patient, which must at all times be kept entirely separate from those provided for other patients.

(g) No person suffering from tuberculosis in an infectious form shall attend, frequent, or be employed in any public, private, or parochial school nor engage in any occupation involving the handling of food or milk. In event that any person so mentioned is believed to be suffering from tuberculosis in an infectious form, the commissioner of health and sanitation, upon receipt of information of such belief, shall make a prompt and diligent investigation and determine either by personal examination or by written certification from a legally qualified physician whether or not such person be infectious. Until such examination or certification shall be made, such person shall be excluded from school and from employment involving the handling of food or milk.

(h) When any dwelling, or any room or compartment in any hotel, lodging house, or apartment is vacated after having been occupied by any person suffering from tuberculosis, such dwelling, room, or compartment shall be thoroughly cleansed and disinfected.

RULE 21. Typhoid fever.—Every case of typhoid fever shall be subject to the following procedure:

(a) Placarding of the premises shall not be required, except as provided in paragraph (d).

(b) The patient shall be isolated as far as practicable until recovery, and contact with other than nurse and attendants shall be discouraged.

(c) The sale or distribution of food or milk from infected premises is expressly prohibited, and persons living in an infected household shall not be permitted to engage in the handling or sale of milk or foods for public consumption.

(d) Concurrent disinfection of all excreta from patients must be rigorously performed. The room of the patient shall be effectively screened against flies. Terminal cleansing of the patient's room and of contaminated articles shall be required. If every precaution is not taken as directed by the commissioner of health and sanitation to prevent the spread of infection, the premises shall be placarded so the public may be warned of the disease.

(e) The commissioner of health and sanitation shall make a sanitary inspection of all premises on which cases of typhoid fever exist or originate and shall inquire carefully into the possible sources of the disease. If he shall find any insanitary condition or any condition contrary to the sanitary regulations of the city of Springfield, Mo., he shall order forthwith the correction of such condition.

RULE 22. Typhus fever.—Every case of typhus fever shall be reported immediately by wire to the State board of health, by the commissioner of health and sanitation, and shall be subject to the special instructions issued for its care.

RULE 23. Whooping cough.—Every case of whooping cough shall be subject to the following procedure:

(a) The premises shall be placarded.

(b) The patient shall be confined to the premises for not less than five weeks from date of onset and until one week after the last characteristic paroxysmal cough or "whoop" has ceased.

(c) Susceptible children under 14 years of age in any infected household shall not be permitted to attend school or public gatherings without special permission from the commissioner of health and sanitation.

(d) Concurrent disinfection of nose and throat discharges and articles soiled with such discharges shall be practiced. Terminal cleansing of the patient's room shall be required.

SEC. 19. Full quarantine of premises from disregard of quarantine rules.—In case any of the general provisions of this ordinance, or any of the orders or regulations of the commissioner of health and sanitation relating thereto, are violated or disobeyed, the commissioner of health and sanitation may enforce "full quarantine" of the premises. When this measure is used it shall mean that the person or persons afflicted with the disease and their attendants, and all those who come in contact with such person or persons, shall not be permitted to leave the premises designated as under "full quarantine" unless specifically authorized by the commissioner of health and sanitation. Such quarantine restrictions are not intended to include the attending physician or, in case of death, the funeral director and assistants.

SEC. 20. Penalty for violation.—Any person violating the provisions of this ordinance shall upon conviction before the municipal judge be guilty of a misdemeanor and punished by a fine of not more than \$300 or not more than 60 days in jail or by both fine and imprisonment.

EXCRETA, HUMAN—SANITARY DISPOSAL OF

BIRMINGHAM, ALA.

Human Excreta—Sanitary Disposal—Construction, Maintenance, and Use of Water-closets, Septic Tanks, and Privies—Water and Sewer Connections. (Ord. 967-C, February 10, 1925)

SECTION 1. It shall be unlawful for any person, firm, or corporation or their agent to construct or maintain within the city of Birmingham or its police jurisdiction any dwelling, building, premises, or other place where human beings reside, are employed or congregate, or to rent, lease, use, or permit to be used for such purpose any such dwelling, building, premises, or other place which is not provided with adequate facilities for the disposal in a sanitary manner of the bodily discharges of such persons, the method, type, construction, capacity, and location of which shall be in accordance with the provisions of this ordinance.

SEC. 2. The board of health is hereby empowered and directed to make such inspections and investigations and to take such legal steps as may be necessary to regulate and control the type, construction, capacity, location, use, and to maintain in a sanitary condition all such facilities, privies, toilets, water-closets, and all appurtenances thereto or used in connection therewith in the city of Birmingham, Ala., and its police jurisdiction, and it shall be unlawful for any person, firm, or corporation to use or maintain in said city or its police jurisdiction any privy, dry closet, toilet, or water-closet, or other method of sewage disposal not in accordance with the provisions of this ordinance or not in accordance with the regulations and specifications general and uniform in their nature promulgated by the board of health.

SEC. 3. When used in this ordinance and for the purposes thereof the following terms and words shall be construed and have the meaning assigned to them as follows:

Board of health.—The board of health of Jefferson County, Ala., or the city of Birmingham, Ala., as now or hereafter may be provided by law.

Sanitary.—The word "sanitary" when used in connection with or alluding to a system, method, or character of sewage disposal or to the type, capacity, construction, location, or condition of a water-closet, septic tank, privy, or dry closet used for or in connection therewith shall in addition to its ordinary definition mean only such system, method or character of sewage disposal, and such water-closets, septic tanks, privies, or dry closets and all appliances and appurtenances thereto which are used for or in connection with such purposes as are in accordance with the provisions of this ordinance, or as are in accordance with regulations and specifications general and uniform in nature promulgated by the board of health.

Water-closet.—A type of closet or receptacle normally containing a portion of water into which human excreta will in the course of proper or ordinary use thereof fall or be deposited and which water-closet is connected to water under pressure and so constructed and equipped that such excreta will be washed or carried by water flowing or caused to flow through the same at appropriate intervals into a sewer or other system of drainage or method used for the disposal of such excreta, sewage, or contents in a sanitary manner.

Septic tank.—A water-tight tank or receptacle used as a temporary reservoir for the purpose of receiving or depositing the sewage, contents, or drainage from a water-closet and which is connected with a system of subsurface drainage or other outlet in such manner as will afford final disposal of such sewage, contents, or drainage in a sanitary manner: *Provided*, That no septic tank shall be installed under the provisions of this ordinance having less than 200 gallons effective capacity nor less than 30 inches of effective depth.

Privy or dry closet.—A receptacle, place, or method used for the purpose of containing or disposing of human excreta other than a water-closet, not connected

to water under pressure and for the purposes hereof shall be classified as class A and class B privies or dry closets.

SEC. 4. A privy or dry closet of class A, as provided in this ordinance, shall consist of an excavation not less than 4 feet in depth, and having a total dimension of not less than 43 cubic feet into soil, over which, and as a part of such privy or dry closet, is placed an appropriate cap or covering and seat riser substantially constructed of cement or other nonabsorbing material in such a manner that all human excreta will, during the ordinary and proper use thereof, be deposited directly into such excavation. Such privies or dry closets shall be located, constructed, and maintained in such a manner as to exclude surface drainage, flies, insects, and animals: *Provided*, That two or more seats may be placed over and used in connection with a single excavation when the dimensions and capacity of such excavation are proportionately increased.

SEC. 5. All privies or dry closets of class A, as provided in this ordinance shall be provided with adequate ventilation and such provision shall include an opening of not less than 3 inches in diameter in the rear side of the seat riser, at a point approximately the center of the rear elevation of same and to which is attached a pipe made of galvanized metal having a diameter of not less than 3 inches and extending horizontally through the rear wall of the surrounding house or enclosure to the outside air. Said pipe shall be attached at its outer end to an elbow, the outlet of which is directed downward, or be attached to a pipe of similar material and dimensions extending upward to a point not less than 3 feet above the highest portion of the roof over such privy or dry closet. Said opening in the seat riser or the pipe leading therefrom shall be covered with a wire screen in such a manner as to prevent the passage of flies, insects, or animals.

SEC. 6. A privy or dry closet of class B, as provided in this ordinance, shall consist of an appropriate box or container, adequately ventilated and substantially constructed of wood or other appropriate material, equipped with and having as a part of same a substantial water-tight metal receptacle of not less than 9 gallons capacity, placed or arranged inside of said box or container in such a manner that human excreta will, during ordinary or proper use thereof for such purpose, be deposited directly into such receptacle. Such privies or dry closets shall be constructed and maintained in such a manner as to exclude flies, insects and animals: *Provided*, That a privy or dry closet of class B shall not be constructed or maintained as such on or about a place, location, or premises in the city of Birmingham or its police jurisdiction except in such instances and at such places or location as for good and sufficient reason a privy or dry closet of class A cannot reasonably be constructed and maintained in accordance with the provisions of this ordinance.

SEC. 7. The provisions of this ordinance relating to the type, capacity, construction, or location of a water-closet, septic tank, privy, or dry closet shall be held to apply to such water-closets, septic tanks and privies, or dry closets as are now or may hereafter be constructed, reconstructed, rebuilt, repaired, or installed, and it shall be unlawful to construct, reconstruct, rebuild, repair, or install a water-closet, septic tank, privy, or dry closet except in accordance with the provisions hereof.

SEC. 8. It shall be unlawful for any person, firm, or corporation, or their agent, owning or controlling property, or for tenants or occupants of such property or premises in the city of Birmingham, Ala., or its police jurisdiction, to permit the disposal of human excreta on or about such property or premises except in a sanitary water-closet, privy, or dry closet as provided in this ordinance.

SEC. 9. Whenever used in this ordinance for the purpose thereof, the following words, terms, or names, shall be construed as follows:

Dwelling.—A "dwelling" is a house or building or portion thereof which is occupied in whole or in part as the home, residence, or sleeping place of one or more human beings, either permanently or transiently.

Private dwelling.—A "private dwelling" is a dwelling occupied by but one family alone.

Two-family dwelling.—A "two-family dwelling" is a dwelling occupied by but two families.

Multiple dwelling.—A "multiple dwelling" is a dwelling occupied otherwise than as a "private dwelling" or a "two-family dwelling."

Classes of multiple dwellings.—Multiple dwellings are "dwellings" and for the purpose of this ordinance are divided into two classes, viz: Class A and class B.

Class A multiple dwellings.—Class A multiple dwellings are dwellings which are occupied more or less permanently for residence purposes by several families, and in which the rooms are occupied in apartments, suites, or groups, and include tenant houses, flats, apartment houses, apartment hotels, bachelor apartments,

duplex apartments, kitchenette apartments, and all other dwellings similarly occupied, whether specifically enumerated herein or not.

Class B multiple dwellings.—Class B multiple dwellings are dwellings which are occupied as a rule transiently as the more or less temporary abiding place of individuals who are lodged, with or without meals, and in which, as a rule, the rooms are occupied singly. This class includes hotels, lodging houses, boarding houses, furnished rooming houses, lodgings, club houses, convents, asylums, hospitals, jails, and all other dwellings similarly occupied, whether specifically enumerated herein or not.

SEC. 10. There shall be provided for each and every private dwelling hereafter constructed or reconstructed in said city or its police jurisdiction one separate sanitary water-closet, privy, or dry closet, and for each two-family dwelling and for each multiple dwelling of class A hereafter constructed or reconstructed there shall be provided for each family a separate sanitary water-closet or separate privy or dry closet. In multiple dwellings of class B hereafter constructed or reconstructed there shall be provided one separate sanitary water-closet or separate privy or dry-closet seat for each 15 occupants or fraction thereof.

SEC. 11. In all buildings or places other than dwellings where persons are employed or congregate, there shall be provided one separate water-closet or separate privy or dry-closet seat for each 20 persons or fraction thereof: *Provided*, That in all such buildings or places and in multiple dwellings of class B separate water-closets, privies, or dry closets within separate and complete enclosures, having separate entrances, shall be provided for males and females.

SEC. 12. Water-closets and privies or dry closets as provided in this ordinance shall be located in a room or inclosure separate and apart from other rooms or inclosures used for other purposes: *Provided*, That where two or more water-closets, privy, or dry-closet seats are located within a single or common inclosure, each shall be separated by a wall or partition so constructed as to effectively obstruct the vision or contact between persons during the ordinary use thereof. All rooms, buildings, or inclosures in which such water-closets, privies, or dry closets are located shall be substantially constructed so as to afford reasonable privacy and protection to users thereof from rain or extremes of weather and shall have adequate provision for light and ventilation. The entrance into such rooms, buildings, or inclosures shall be equipped with a properly fitting door or shutter so arranged or equipped as to be self-closing and which shall be kept closed at all times, (except during the course of customary or proper use thereof), and all openings into such rooms, buildings, or inclosures shall be constructed and equipped in such manner as to effectively prevent the passage of flies, insects, and animals.

SEC. 13. No water-closet shall be located out of doors or outside the principal building, the equipment of which it is intended to become a part nor shall such closet be placed in a cellar.

SEC. 14. It shall be unlawful for dwellings or other buildings or premises which are not provided with sanitary water-closets, privy, or dry closet facilities in accordance with the provisions of this ordinance to be leased or rented for the purpose of residence or occupancy by human beings or to be used or occupied for such purposes.

SEC. 15. It shall be the duty of the board of health to prohibit, as provided by law, the use or occupancy for dwelling purposes of a dwelling, building, or premises not so equipped, and when necessary, to order or cause such dwelling, building, or premises to be vacated.

SEC. 16. It shall be unlawful for any person to use or permit the use of a water-closet, septic tank, privy, or dry closet which is defective or for any reason unsanitary, or which does not conform to the provisions of this ordinance, and each use thereof shall constitute a separate offense.

SEC. 17. When an approved public water supply under suitable pressure and a sanitary sewer are or become available within reasonable distance from any dwelling, building, or other place in the city of Birmingham, Ala., or its police jurisdiction, where human beings reside, are employed, or congregate, a water-closet, connected to such water and sewer shall be immediately installed in accordance with the provisions of this ordinance, and after such installation has been made, it shall be unlawful to maintain, use, or permit to be used, in, on, or about such dwelling, premises, or place any other type of water-closet, privy, or dry closet: *Provided*, That in the absence of a sanitary sewer such water-closet may be connected to a septic tank: *Provided further*, That a privy or dry closet of class A may when constructed, maintained, and used subject to the provisions of this ordinance, be substituted for and used in lieu of a water-closet or yard closet on

a place, location, or premises adjacent or accessible to a sanitary sewer when such water-closet or yard closet was installed prior to the adoption of this ordinance and is of a type or character not in accordance with this and other valid ordinances.

SEC. 18. The provision of this ordinance relating to sewer connections and water supplies shall be deemed to apply only where a public sanitary sewer and a public water main or pipe are or become reasonably accessible, and such shall be deemed to be reasonably accessible when said public sewer and public water main or pipe are located within a distance of 200 feet of any outside line of the lot upon which such dwelling or other building is located: *Provided*, That when such property or premises is not subdivided into lots, and so designated on available surveys or maps of record, then the distance specified above shall be deemed to apply from the nearest portions of said dwellings or buildings.

SEC. 19. When water suitable for use by human beings, the source and quality of which are approved for such use by the board of health, becomes available on any premises in the city of Birmingham, Ala., or its police jurisdiction, where human beings reside, are employed, or congregate, the maintenance of or use of water for domestic purposes from open wells or other sources on such premises not so approved is hereby declared to be unlawful.

SEC. 20. When a pit or excavation used as or in connection with a privy or dry closet shall become filled with human excreta or other solid material to within 12 inches of the level of the surrounding surface, the owner, agent, tenant, or person using said privy or dry closet or in possession of any place or premises upon which the same is located, shall forthwith construct a new privy or dry closet or reconstruct the same by the sanitary removal of its contents or by providing a new excavation of adequate dimensions in another location which shall be constructed and equipped in accordance with the provisions of this ordinance. When a pit or excavation used as a privy or dry closet is abandoned after becoming filled or partly filled with human excreta, the contents thereof shall be covered with dirt to a depth of not less than twelve inches, and in every case such pit or excavation shall be filled up to a level with the surrounding surface and kept so.

SEC. 21. All water-closets, septic tanks, or dry closets within the city of Birmingham, Ala., or its police jurisdiction shall be subject to inspection or investigation by the board of health or its representative at all reasonable times, and the said board of health or its representatives shall have the right to enter upon or into all property, premises, or buildings for such purposes at all reasonable times.

SEC. 22. All water-closets, septic tanks, privies, or dry closets and appurtenances thereto on any premises in the city of Birmingham, Ala., or its police jurisdiction not constructed, located, equipped, or maintained in accordance herewith are hereby declared to be unsanitary, a menace to the public health, and a nuisance, and shall be abated in accordance with law.

SEC. 23. Each and every violation of the provisions of this ordinance shall constitute a separate offense for each day such violation occurs or exists, except as provided in section 16.

SEC. 24. Any person violating the provisions of this ordinance shall, upon conviction be punished as provided in section 1936 of the code of Alabama, of 1923, except that the fine in every case shall be not less than \$5.

SEC. 25. All ordinances and parts of ordinances in conflict herewith are hereby repealed.

SEC. 26. If any section, clause, provision, or portion of this ordinance shall be held to be invalid or unconstitutional in a court of competent jurisdiction, such holdings shall not affect any other section, clause, provision, or portion of this ordinance which is not in itself and of itself unconstitutional.

GLENDAL, CALIF.

Abandoned Septic Tanks and Cesspools—Chemical Treatment—Pumping out and Filling with Earth. (Ord. 1208, September 16, 1926, as Amended by Ord. 1229, December 16, 1926)

SECTION 1. That whenever any septic tank or cesspool in the city of Glendale, located on private property, is abandoned by reason of the property which such tank or cesspool formerly served being connected with the public sewer, the owner of such septic tank or cesspool shall permit the plumbing inspector of the city of Glendale to chemically treat the same by depositing therein at least either

5 pounds of sodium hypochlorite or caustic soda, or 1 gallon of luxol or chlorox, or its equivalent, within 10 days after such connection with the public sewer shall have been made; or the owner of such tank or cesspool shall cause the same to be pumped out and completely filled with good, sound earth within 10 days after such connection with the public sewer shall have been made.

SEC. 2. That whenever any septic tank or cesspool in the city of Glendale located in any public street, alley, or way, is abandoned by reason of the property which such tank or cesspool formerly served being connected with the public sewer, such septic tank or cesspool shall be pumped out and completely filled with good, sound earth within 60 days after such connection to the public sewer shall have been made.

SEC. 3. That it shall be unlawful for any person, firm, or corporation owning, leasing, renting, or having in charge any property in the city of Glendale to fail or neglect to have any such abandoned septic tank or cesspool chemically treated, if upon private property, within 10 days after such property shall have been connected to the public sewer; or, if located in any public street, alley, or way, to have the same pumped out and completely filled with good, sound earth within 60 days after such property shall have been connected to the public sewer.

SEC. 4. Any person, firm, or corporation violating any of the provisions of this ordinance shall be deemed guilty of a misdemeanor and upon conviction thereof shall be punishable by a fine of not more than \$100, or by imprisonment in the city jail of the city of Glendale, or the county jail of the county of Los Angeles for a period of not more than 30 days, or by both such fine and imprisonment.

HAZLETON, PA.

Sewer Connections—Required where Possible—Discontinuance of Use of Privies and Cesspools where Sewers are Accessible. (Ord. 618, February 24, 1925)

SECTION 1. That from and after the passage and approval of this ordinance, it shall be the duty of the owners of all buildings erected in the city of Hazleton, which are accessible to public sewers of the city of Hazleton, to effect connection with said public sewers.

SEC. 2. That from and after the passage of this ordinance, it shall be unlawful for any person or persons whatsoever to maintain or use any privy, privy vault, or cesspool or other similar receptacle for human excrement upon such premises when public sewers are reasonably accessible for drainage purposes.

SEC. 3. That from and after the passage of this ordinance it shall be the duty of the owners of any such premises (reasonably accessible to such public sewers), upon which there may exist privies, privy vaults, cesspools, or other similar receptacles for human excrement, to cleanse the same of and from the contents thereof and immediately fill and seal the same.

SEC. 4. That from and after the passage of this ordinance it shall be unlawful for any person or persons to drain or connect any privy, privy vault, or cesspool or like receptacle for human excrement into the sewer system of the city of Hazleton.

SEC. 5. That if any person or persons, firm, partnership, or corporation shall violate or fail to observe any of the provisions of this ordinance, such person or persons, firm, partnership, or corporation shall, upon conviction of such violation, be fined a sum not exceeding \$100 and in default of payment thereof shall undergo imprisonment in the city lockup for a period not exceeding 30 days.

SEC. 6. That if such conviction shall be entered against any person, persons, firm, partnership, or corporation, then the condition upon which such conviction shall be predicated shall be deemed a common nuisance, to be abated according to law, by the proper officers of the city of Hazleton and the costs of such abatement shall be enforced at law by an appropriate lien against the premises upon which such nuisance may exist.

JACKSON, MISS.

Human Excreta—Sanitary Disposal—Sewer Connections—Construction, Maintenance, and Use of Privies, Septic Tanks, and Other Toilet Devices. (Ord. May 15, 1925)

SECTION 1. That it shall be unlawful for any person within the city of Jackson, Miss., to throw out, deposit, or in any other way dispose of human excreta other

than into a sanitary water-closet, a properly constructed pit privy, a properly constructed septic tank, or other sanitary toilet device approved by the county health unit.

SEC. 2. That all places in the city of Jackson where people reside, are employed, or congregate shall be provided with a sanitary method for the disposal of human excreta. It shall be the duty of the property owner to provide said sanitary method.

SEC. 3. That all property owners owning property as designated in section 2, and which is located on streets where a line of the sanitary sewerage system is located, shall have installed one or more sanitary water-closets connected with said sewerage system; provided there is sufficient fall to provide gravity flow from said property to said sewerage system.

SEC. 4. That all property owners owning property as designated in section 2, and which is located on streets where a line of the sanitary sewerage is not located, but which is within a distance of 300 feet from a street where a line of the sanitary sewerage system is located, shall have installed one or more sanitary water-closets connected with said sewerage system; provided, there is sufficient fall to provide gravity flow from said property to said sewerage system.

SEC. 5. That all property owners owning property as designated in section 2, but which does not come within the provisions of section[s] 3 and 4, shall have installed a properly constructed pit privy, septic tank, or other sanitary toilet device approved by the county health unit.

SEC. 6. That the devices described in section 5 shall have the following specifications:-

(A) Pit privy—

1. The pit shall not be less than 4½ feet deep; 2 feet wide; and as long as the privy building will permit.

2. The pit shall be lined with a good grade of lumber where necessary.

3. The seat over the pit shall be made of tight-fitting lumber so constructed as to exclude flies at all times. The seat shall be provided with self-falling hinged lids of sufficient size to overlap each seat hole so as to make the pit fly tight.

4. The pit shall be ventilated by means of a vent or flue pipe extending from the pit to a point above the roof of the building, the flue to be made of wood or galvanized iron, to be screened at the top with 16-mesh wire screen, and to be not less than 4 inches wide inside dimensions.

5. The pit shall be so constructed that no surface water can drain into it, and so located that it will not constitute a source of danger to any source of drinking water.

(B) Septic tank—

1. A water-tight covered receptacle for the reception of liquid household wastes and the retention of solids contained therein, which shall be provided with both an inlet and outlet pipe.

2. Septic tanks shall be of a type and size approved by the State board of health and the overflow from a septic tank shall be disposed of according to the rules and regulations of the State board of health relating thereto.

(C) Other toilet devices—

1. Other sanitary toilet devices hereinbefore referred to shall mean chemical toilets, or such other toilet devices as shall be approved by the county health unit.

SEC. 7. That no wash water, garbage, kitchen slop, or other wastes shall be emptied into any privy or closet receptacle.

SEC. 8. That it shall be the duty of the occupants of each premise to see that the privy or other toilet device is kept in a sanitary condition at all times, and that it shall be unlawful for anyone to abuse or misuse said property.

SEC. 9. That on and after the passage and approval of this ordinance any property owner intending to alter or install a method of excreta disposal on any property shall apply to the county health unit for a certificate of approval for such alteration or installation and the county health unit shall cause an inspection to be made of said property to determine which one of the methods of excreta disposal as hereinbefore described shall be employed, and shall issue to the property owner a certificate of approval for the alteration or installation stating therein the method of excreta disposal to be employed, and it shall be the duty of the property owner to comply with the provisions of said certificate of approval: *Provided, however,* That this section shall in no wise relieve the property owner or the party doing the work from securing the regular permit from the department of permits of the city of Jackson, Miss., for doing such work.

SEC. 10. That whenever new lines or extensions of the sanitary sewerage system are installed all property owners owning property as designated in section

2 [and which] property is so located as to become subject to the provisions of section 3 or section 4 shall comply with the provisions of section 3 or section 4.

SEC. 11. That on property where in the opinion of the county health officer or his official representative a pit privy will satisfactorily operate and there is located a box and can privy, an open back privy or any other type of privy not properly maintained or operated, it shall be the duty of the county health officer to notify in writing the owner of said property to so alter or reconstruct said privy so that it will comply with the specifications of a pit privy as contained herein, and it shall be the duty of the owner of the property to comply with said written notice: *Provided*, That the said property owner shall have the privilege of installing some other approved method of excreta disposal as specified herein other than a pit privy provided said property owner applies for and is issued a certificate of approval for such installation as described in section 9 of this ordinance.

SEC. 12. That after the 1st day of ———, 1925, it shall be unlawful to either maintain or use any method of excreta disposal other than is herein specified by any person, firm, or corporation or their agents or assigns.

SEC. 13. That any person, firm, or corporation, their agents or assigns, violating any of the terms of this ordinance shall on conviction be fined a sum not exceeding \$100 or imprisonment not exceeding 15 days, or both said fine and imprisonment, and each day[s] continuance of any violation shall constitute a separate offense and is punishable as such.

RICHMOND, VA.

Sewers—Connections with. (Reg. Bd. of H., May 16, 1924)

1. Wherever in the city of Richmond a sanitary sewer is installed, the board of health hereby orders that the owners or agents for all houses to which said sanitary sewer is available, in front, side or rear, shall within 30 days of being notified by the health officer of the city of Richmond so to do, make the necessary connections with said sanitary sewer for the carrying off of all waste water from all plumbing fixtures, and, in any locality subject to flooding of cellars by back water from or through any sewer, such cellars shall be provided with a drain connected with said sanitary sewer.

2. All premises connected with a sanitary sewer, as hereinbefore provided, and to which a storm sewer (or a combined sewer) is also available shall provide the necessary connections for the conducting of all rain water from roofs and yards into said storm, or combined, sewer.

3. All the foregoing requirements shall be carried out in each instance in accordance with plans approved by the health officer of the city of Richmond, and in every instance any and all abandoned connections with any sewer shall be tightly sealed.

Any person failing to comply with the foregoing rules and regulations shall be subject to a fine of not less than \$2 nor more than \$25 recoverable before the police justice of the city of Richmond; each day's failure so to comply to constitute a separate offense.

UNION CITY, N. J.

Scavengers—License—Removal and Transportation of Contents of Privies and Cesspools. (Reg. Bd. of H., December 23, 1925)

SECTION 1. No person shall engage in the scavenger business within the limits of the city of Union City, in the county of Hudson, without license of the board of health, for each and every vehicle or conveyance used in said business, so to do, and without special permission for each operation to be performed by such scavenger within the limits of the city, as hereinafter set out. Every person engaging in the scavenger business and applying for a license pursuant to this ordinance shall make affidavit as to the number of vehicles or conveyances used by him or intended to be used by him in said business in the city.

SEC. 2. All licenses granted pursuant to this ordinance shall be good for the calendar year, or for any portion of the calendar year in which issued, and shall be granted only upon payment of a license fee of \$10 payable in advance, such license fee to cover, either a full calendar year or any portion of the calendar year, it being the intention that whether a license is issued for a full calendar year or for a lesser period within the calendar year, the license fee shall be the sum of \$10.

SEC. 3. No person shall remove the contents of any privy vault or cesspool, within the limits of the city, except upon special permit of the board of health, and for each permit so issued, the sum of \$3 shall be paid to the board of health by the person obtaining the same.

SEC. 4. No part of the contents of any privy vault or cesspool, within the limits of the city, excepting only substances not soluble in water, shall be removed therefrom or transported through the city except the same be removed and transported in some securely sealed tank which prevents the emission of odors, and no part of the contents of any privy vault or cesspool shall be removed by the pitting process, except in cases where it is impossible to remove the same by pumping. When the contents of any privy vault or cesspool are removed by the pitting process, the same shall be first thoroughly disinfected, and in removing such contents the same shall be deposited in dunnigans or barrels which shall be water-tight and the lids of which shall be securely fastened to said dunnigans and barrels by clamps and shall be made tight by means of a rubber gasket between said lids and chimes. Any scavenger, who shall commence to clean any privy vault or cesspool, shall proceed with the work, thus undertaken, without interruption or delay, removing every portion of the contents of such privy vault or cesspool during the course of one operation.

SEC. 5. Such tanks as may be used in the operation provided for by this ordinance, and any trucks for conveying the dunnigans and barrels used in such operations shall be suitably constructed and shall be water-tight and completely inclosed, and all such trucks shall bear upon each side the name of the licensee, together with the license number of such truck, distinctly painted thereon, together with the words "Board of health, Union City. Permit No. —," in letters at least 2 inches tall. Any truck, dunnigan, barrel, or other appliance or apparatus used in the operations provided for by this ordinance shall, at all times when not in actual use, be kept in a clean and sanitary condition, free from all obnoxious odors.

SEC. 6. Any person or persons, company, partnership, or corporation violating any provision of this ordinance shall, upon conviction thereof, pay a penalty of not less than \$2 and not more than \$100, the amount of such penalty between the maximum and minimum, thus to be paid, to be fixed in the discretion of the court or magistrate before whom the complaint may be made, and any person thus adjudged guilty and sentenced to pay a penalty, who may refuse or neglect to pay the amount of such judgment or penalty and all costs and charges incident thereto, may be by the court or magistrate before whom the complaint has been heard committed to the county jail for any period not exceeding 90 days and the court or magistrate before whom the complaint may be thus made, in case the defendant shall have been twice convicted, within the space of six months, of the violation of this ordinance, on due proof of such fact being made, may, in addition to the payment of the appropriate penalty, cause said defendant to be imprisoned in the county jail or county workhouse, with or without hard labor, for any number of days, not exceeding one for each dollar of penalty imposed.

FOOD, DRINKS, AND FOOD ESTABLISHMENTS¹

CHARLOTTESVILLE, VA.

Food Establishments—Permit—Inspection—Sanitary Requirements—Employees—Protection of Food—Destruction of Unfit Food—Wrapping of Bakery Products—Service of Milk in Original Bottle Required—Cleaning of Utensils at Ice Cream Parlors, Soda Fountains, etc. (Ord. March 3, 1924)

Be it ordained by the council of the city of Charlottesville that the following regulations shall govern the handling of foodstuffs in said city:

1. *Definition.*—The term "food establishment" shall be construed to mean any place (except where used principally as a private home) in which food products are manufactured, prepared, packed, handled, stored, sold, or distributed and shall include hotels, inns, boarding houses (where there are more than five boarders), restaurants, cafés, lunch counters, all public eating houses, and the kitchens thereof; all bakeries, bake shops, delicatessens, confectioneries, candy factories, ice cream factories and parlors, refreshment stands, soda fountains, fruit stores, fruit stands, wagons from which food is sold, groceries, markets, meat markets, bottling plants, places where milk is bottled or exposed for sale, and other similar places.

2. *Permits.*—Any person, firm, or corporation operating or managing any food establishment as hereinbefore defined, shall, before engaging in such business, secure a permit from the health officer or his duly appointed representative. Permits shall be issued on or before the 1st day of May of each year, or later according to when application for same is made, and shall expire on April 30 of the following year. A permit shall only be issued to a food establishment when it has been determined by previous inspections that this ordinance and all the other rules and regulations of the board of health are being constantly complied with.

3. *Food establishment to be kept in a sanitary condition.*—Every person, firm, or corporation keeping, maintaining, or being in charge of any food establishment shall keep the same in a clean and sanitary condition.

4. *Protect food from flies, dust, dirt, etc.*—Food in the process of manufacture, preparation, packing, and when stored, on sale, or offered for sale shall be securely protected from flies, dust, and dirt, and food ready for consumption without further preparation, maintained or offered for sale or exchange, shall be covered by some permanent means, such as glass, wood, metal, or other suitable materials in such manner or means to adequately protect same from dirt, dust or other contamination. The use of newspapers, old sacks, unclean paper, or any paper that has been formerly used as an outside or inside wrapping of articles of food is hereby prohibited. No food, meat, or other food article, except fish, shellfish, and live fowls, shall be exposed on the sidewalks or streets of the city of Charlottesville, except as may be necessary in transporting from one place to another.

5. *Screens.*—All doors, windows, transoms, flues, and other openings which open to the outer air from food establishments shall be properly screened with not coarser than 14-mesh wire from the 1st day of March until the 1st day of December. This shall not apply to wholesale groceries and flour and meal mills.

6. *Utensils, etc.*—All utensils and appliances, machines, racks, molds, trucks, tables, blocks, dishes, silverware, towels, napkins, table covers, aprons, jackets, and all other equipment or articles in use in the preparation, storage, serving, or distributing of foodstuffs in such places shall be maintained in a clean and sanitary manner. The floors, side walls, ceilings, furniture, receptacles, implements, and machinery of every food establishment shall at all times be kept in a clean, healthful, and sanitary condition.

¹ See also Ice cream, p. 124; Meat and meat food products, p. 132; Milk and milk products, p. 164; Water and ice, p. 222.

7. *Ventilation, lighting, etc.*—Every building, room, basement, or cellar occupied or used as a food establishment shall be properly lighted, drained, plumbed, and ventilated and conducted with due regard for the purity and wholesomeness of the food therein produced, sold, or stored, and with strict regard to the influence of such conditions upon the health of the operatives, clerks, or other persons therein employed. No food shall be kept, stored, or sold in a damp place. Except at night, live poultry shall not be kept in the same room or compartment in which meat or other foodstuffs are kept or offered for sale.

8. *Ice boxes.*—All ice boxes and refrigerators in food establishments shall at all times be kept in a clean and sanitary condition. All different articles of food stored in ice boxes shall be kept in separate containers.

9. *Garbage cans.*—All food establishments shall be equipped with covered, water-tight metallic cans of sufficient size for retaining and keeping garbage and waste in a sanitary manner and shall at all times be kept covered and so disposed as not to cause a nuisance.

10. *Employees, washing facilities, etc.*—No one shall sleep, or be permitted to sleep, in any room where food is stored, prepared, cooked, or served. No employee or other person in any way connected with the handling, cooking, or preparing of any foodstuffs or products in any food establishment shall engage at work following a visit to a water-closet, urinal, or toilet room, without first thoroughly cleansing his or her hands. Washing facilities shall at all times be maintained in a clean and sanitary condition. Water, soap, individual clean towels, and individual drinking glasses shall be furnished those employed.

11. *Toilet facilities.*—It shall be unlawful to operate, maintain, or conduct any business where the process of production, manufacture, packing, canning, selling, or disposing of food products for consumption is conducted in any building, room, or basement, unless the person so owning, conducting, managing, or operating said business shall provide or cause to be provided a sanitary toilet, which shall be located separate and apart. All doors opening directly into the room or rooms wherein such process of production, manufacture, packing, canning, selling, or disposition is conducted, shall be solid and have automatic closing devices. Every urinal, water-closet, or toilet shall be kept in a clean and sanitary condition at all times, and a standard disinfectant shall be used constantly in such urinals, water-closets, and toilets.

12. *Clothing of employees, expectoration, etc.*—Every person employed in a food establishment or engaged in handling articles of food to be sold or offered for sale shall be clean in person at all times and wear clean garments when engaged in the preparation or disposition of foods. Cuspidors shall be provided by the owner or proprietor for each room of every food establishment and no employee or other person shall expectorate on the floors or walks of any such food establishment. Plain notices forbidding such expectoration shall be posted in each place.

13. *Infectious diseases and disease carriers.*—It shall be unlawful for any person to engage in the work of handling or dispensing of foodstuffs in any food establishment while suffering from or a carrier of any of the following diseases: Actinomycosis, anthrax, bubonic plague, cerebrospinal meningitis (epidemic), cerebrospinal fever (spotted fever), chicken pox, Asiatic cholera, diphtheria (diphtheritic croup, membranous croup, putrid sore throat), epidemic dysentery (bacillary or amebic dysentery), erysipelas, German measles, glanders (farcy), leprosy, measles, mumps, pneumonia (true), scarlet fever (scarlatina, scarlet rash), smallpox (variola, varioloid), syphilis or gonorrhea in communicable form, trachoma, tuberculosis in communicable form, typhoid fever, paratyphoid fever, typhus fever, whooping cough, anterior poliomyelitis, impetigo contagiosa, scabies, or any other infectious or communicable disease. It shall be unlawful for any person to engage in the handling, preparation, sale, or dispensing of any foodstuffs or be employed at any food establishment during the time a case of infectious, contagious, or communicable disease exists at the place where such person resides, or during the time that such place is quarantined or thereafter until the quarantine shall have been removed, except with the permission of the health officer. It shall be unlawful for any proprietor, manager, or other person in charge of a food establishment to employ any person suffering from any of the diseases previously mentioned, or known to be a carrier of the same, or residing at a place where such disease exists. Violation of the provisions of this section shall be punished by a fine not less than \$25 for each offense, and each day shall constitute a separate offense.

14. *Physical examination of food handlers.*—The health officer shall be empowered to order any physical or laboratory examination of any employee at any

time that may be deemed necessary to determine whether a communicable disease exists.

15. *Spoiled, diseased, or adulterated food.*—All canned foods must be removed from their original container as soon as the cans are opened and shall thereafter be kept only in glass, china, or crockery vessels. Whenever any health, sanitary, police, or other agent or officer of the health department of the city shall find [in] any food establishment or other place any rotten, diseased, unwholesome, adulterated, or misbranded foodstuff, substance, or articles intended for human food or drink, it shall be the duty of such officer or agent to notify the owner, manager, or person in charge of such articles, place, or vehicle to remove such foodstuffs or articles to some proper place and destroy the same in the presence of said officer or agent, or such officer or agent may seize such foodstuff or article and destroy it, provided that said officer or agent may retain any amount desired for examination or use as evidence in any prosecution under this ordinance. It shall further be unlawful for any person, firm, or corporation, after notification by the health officer, to offer for sale or sell vegetables that have been grown on soil that has been impregnated or fertilized with human excrement within a period of 12 months from time of such fertilization. All containers in which spoiled food has been placed shall be thoroughly cleansed before a second use.

16. *Meats, handling of food, etc.*—All beef, pork, mutton, goat, poultry, fish, oysters, and shellfish and other meats offered for sale in Charlottesville shall be subject to inspection by a proper representative of the health department, who shall have power to condemn any such meats or fowl unfit for human consumption. It shall be unlawful for any person, firm, or corporation engaged in the sale of meats and other foodstuffs to permit meat articles of food which are of such nature that they may be defiled or polluted by handling to be exposed for sale in such manner that they may be handled by prospective purchasers or others by whom such handling is not necessary. No meats, meat products, or other foodstuffs shall be brought into, transported, or sold in the city of Charlottesville unless properly covered and adequately protected against pollution, flies, dust, dirt, etc. Meats, meat products, fish, and shellfish on sale or in storage shall be kept in iced refrigerators or iced containers. Any person selling or offering for sale any beef, pork, mutton, or goat which has not been killed and inspected at an abattoir approved by the health department, shall first obtain a permit from the city health officer. Such meat and all animals to be slaughtered and premises where slaughtered shall at all times be subject to inspection by a representative of the city health department. It shall be unlawful for any person knowingly to sell or offer for sale any part of the carcass of a diseased animal unless approved by an accredited veterinarian. The penalty for the violation of this section shall be the revocation of the permit and a fine of not less than \$100, or 30 days in jail, or both.

17. *Wrap bread.*—All bread, rolls, biscuits, cakes, and pies, and all other baked goods, sold, exchanged, or delivered in the city of Charlottesville shall be closely wrapped in a clean paper before leaving the building: *Provided, however,* The provisions of this ordinance shall not apply to hotels, restaurants, boarding houses, or other places where bread is made for their own use.

18. *Milk served in food establishments.*—It shall be unlawful for any person keeping, maintaining, or managing any hotel, inn, cafe, restaurant, lunch room, soda fountain, refreshment stand, or other place where milk is sold or distributed to the general public in the city of Charlottesville, to serve, or to offer to serve, to any person any milk, except buttermilk, unless it be in a regulation milk bottle tightly stoppered and bearing the name of the individual, firm or corporation on the bottle cap in legible type who was responsible for bottling said milk. Said milk shall be bottled in a lawfully constructed bottling room at the dairy farm or milk depot, and in no case shall be bottled in any other place.

19. *Ice cream and soft drinks, etc.*—All ice cream parlors, soda fountains, and other places where ice cream, sodas, milk, soft drinks, and soda fountain sundries are sold shall comply with the following requirements:

(a) All utensils shall be thoroughly washed and cleaned after each subsequent use in boiling running water or sterilized by live steam.

In lieu of the above requirements, paper cups or paper tumblers with individual spoons will be allowed for individual use only.

(b) The use of straws is forbidden except when such straws are protected from dust, dirt, and handling by employees and others.

(c) As soon as empty, all ice cream, milk, and cream containers shall be thoroughly cleaned and covered so that no flies or foreign matter may enter said container or cans.

(d) All the ice cream dips and other utensils and appliances used in connection with the preparation and dispensing of ice cream, soda, milk, and soft drinks shall be washed in running water and kept in a sanitary condition and protected from flies.

20. *Inspections.*—Regular visits shall be made by the officers of the department of health to all food establishments for the purpose of examining the methods practiced in the handling and dispensing of foods and ascertain if the provisions of this ordinance are being complied with. The officers of the health department shall be vested with the authority to "score" on a score card, adopted by the board of health, any food establishment and to make the same public, if it be so desired, for the purpose of improving conditions in the interest of the public health. If any person owning or operating any food establishment as defined in this ordinance shall hinder, obstruct, or refuse access, ingress, or egress to any officer of the department of health, while upon his official duties as inspector of the food establishment, said food establishment shall have its permit revoked.

21. Any violation of any of the provisions of this ordinance shall be punished by a fine of not less than \$10 for the first offense and \$20 for any subsequent offenses. Each day shall constitute a separate offense. In case of more than two offenses the permit herein required may be revoked by the health officer.

CHICAGO, ILL.

Bakeries—Plumbing and Drainage—Location of and Window Openings in New Bakeries. (Ord. Effective August 17, 1924)

SECTION 1. That section 304, and section 311 as amended January 2, 1924, of the Chicago Municipal Code of 1922, be repealed and the following substituted therefor:

304. *Plumbing and drainage facilities—water-closets and sinks.*—Every such bakery shall be provided with adequate plumbing and drainage facilities, including well-ventilated water-closets and impermeable sinks on iron supports.

311. *New bakeries—Requirements.*—No new bakery shall be hereafter established in any room, basement, or cellar in which the clear height between the finished floor and ceiling is less than 8 feet 6 inches, or in any room or place the floor of which is more than 5 feet below the street, sidewalk, or alley level adjacent to the building, or in any room or place which is not so naturally lighted by means of windows, doors, or skylights that on clear days a book or paper printed with long-primer type can be read between the hours of 10 o'clock a. m. and 2 o'clock p. m. in all parts of the bakery which are used in mixing or handling bakery products: *Provided, however,* That where a bakery is to be installed for the purposes of a restaurant operated in connection with a railway passenger terminal, in case the plans for such bakery shall in all other respects comply with the ordinances of the city and such special requirements as the commissioner of health shall deem necessary with respect to its sanitary features and shall be approved by said commissioner, the said provisions shall not apply.

If any new bakery hereafter established has its floor above, at, or not more than 3 feet below the adjacent street or alley level, no window opening by which it is ventilated shall be less than 3 feet above such street or alley level; if the floor of any such bakery is more than 3 feet below the adjacent street or alley level, no such window opening shall be less than 18 inches above such street or alley level.

DURHAM (CITY AND COUNTY), N. C.

Soft Drinks and Ice Cream—Single-Service Containers and Spoons Required in Dispensing of. Soft Drinks—Cleaning and Sterilization of Bottles. (Reg. B. d. of H., March 11, 1924)

SECTION 1. That article 5, section 24, of the Sanitary Code of the Board of Health, prescribing the manner of serving soft drinks and ice cream to the public at retail, be repealed and in lieu thereof the following regulation substituted.

SEC. 2. That any person, firm, or corporation dispensing soft drinks or ice cream to the public at retail shall be required to dispense said drinks or ice cream in single-service paper containers which shall be used for one service only and then discarded. Individual spoons shall be used in connection with the serving of ice cream or other frozen products.

SEC. 3 Any person, firm, or corporation manufacturing and dispensing soda water or other soft drinks to the public at wholesale or retail in bottles shall be required to install and operate suitable and adequate machinery for the washing, cleansing, and sterilizing of all bottles after each subsequent use.

SEC. 4. Any person, firm, or corporation dispensing soft drinks or ice cream in any other way and manner than that which is specified in sections 2 or 3 of this ordinance shall be guilty of a misdemeanor and punished as prescribed in the Sanitary Code of the Board of Health.

EAST ORANGE, N. J.

Food Handlers—Physical Examination. (Reg. Bd. of H., June 4, 1925)

That section 36 of the Sanitary Code of the City of East Orange, adopted by the board of health June 3, 1920, be, and the same hereby is, amended by addition of the following provisions:

PARAGRAPH 1. No person shall hereafter engage, nor shall any person, firm, [or] corporation employ or allow a person to work for him [or it], in the business of handling food in the city of East Orange, which food is suited for human consumption and is intended for distribution or sale, unless such person shall have filed with the employer a medical certificate issued by the board of health or by a physician licensed to practice medicine in this State, as proof that the said person has been examined under rules and regulations prescribed by the board of health for the purposes of this ordinance, and that the examination failed to show that said person was affected by any infectious disease in a communicable stage or was harboring the causative agent of any such disease.

PAR. 2. In case the employer or owner or other person in charge of any such business is himself engaged in the handling of such foods, this person shall file such a certificate with the health department.

PAR. 3. The provisions of this ordinance shall not apply to food handlers in meat markets, produce markets, or grocery stores and shall not apply to any food which is ordinarily cooked or peeled before consumption or which is inclosed in cans or other receptacles.

PAR. 4. The medical examination, upon which the medical certificate is based, shall be performed in accordance with regulations of the board of health and the findings shall be recorded upon blanks provided by the health department for that purpose. The certificate shall not be transferable and shall be operative for one year from date of issue. It shall be always available and shall be produced for inspection on demand of the board of health or its duly authorized agents, and may be revoked for cause at any time by the board of health or health officer.

[Rules and Regulations Regarding the Medical Examination of Food Handlers]

REGULATION 1. The result of each medical examination performed by physicians in accordance with the provisions of section 36 of the Sanitary Code of the City of East Orange shall be reported to the health department upon official blanks supplied for this purpose. Such blanks shall be dated and signed by the physician making the examination and shall be complete in every respect.

REG. 2. When a physician has been engaged by an employer or an individual food handler to examine one or more persons in accordance with the provisions of the above-mentioned ordinance, the official examination blanks may be secured by application to the health department, stating the names and addresses of the persons he is to examine, as well as the name and address of the establishment in which each is employed.

REG. 3. In the examination of food handlers, physicians must make a complete physical examination of the said person, employing standard and recognized methods for determining the presence of communicable diseases. The report of such examinations shall give the following information:

1. The presence of any evidence indicating the existence of active, arrested, or suspected tuberculosis or any signs of an abnormal condition of the lungs.

2. The presence of any evidence of active or arrested syphilis, or of gonorrhea or chancre.

3. Evidence of any history showing that the food handler has ever had typhoid fever in the past or is likely to be a typhoid "carrier."

4. Evidence that the food handler is suffering from any parasitic or other form of communicable disease.

5. Evidence of any other infectious disease in a communicable form.

When a diagnosis of any communicable disease has been established in making examinations of food handlers, the physician shall report his findings to the health department in the customary manner.

REG. 4. Certificates issued under and by virtue of the provisions of regulation 3 hereof shall not be construed to authorize the employment of persons to whom issued, where such persons thereafter contract, or are infected with, or have been or are exposed to, any infectious disease requiring isolation or exclusion from their employment by any regulation or ordinance; nor shall such certificates be construed as nullifying or limiting the power of the health department to require a reexamination of such persons at its discretion.

REG. 5. When such official blank, properly filled out and signed by any physician licensed to practice medicine in this State, shall have been filed with and approved by the health department, showing that the food handler examined presents no evidence of communicable disease, a certificate will be made out and sent to the physician for his client if desired. If not requested, as provided for on the examination blank, it will be issued direct to the applicant. Such certificate shall specify the date of such physical examination and that it failed to show that the person was suffering from any infectious disease in a communicable form or was harboring the causative organism of any such disease. Where evidence of such disease exists in a noncommunicable form temporary or probationary certificates may be issued by this department if the conditions warrant.

REG. 6. Every food dealer shall be required to report immediately to the department of health the name and address of any employee whom he knows, or has reason to suspect, to be suffering from an infectious disease that may be communicated to others.

EL PASO, TEX.

Food Establishments—Health Certificate Required of Employees—License—Inspection—Sanitary Record Card—Sanitary Requirements—Protection of Food. (Ord. November 8, 1923)

SECTION 1. The words or term "food products," as used in this ordinance shall include all articles used for food, drinks, flavorings, confectioneries, or condiment, by man, whether simple, mixed, or compound.

SEC. 1 (a). The words or term "food products establishment," as used in this ordinance, shall mean and include any place or establishment occupied, used, or maintained for the purpose of selling, offering for sale, exposing for sale, or keeping with the intention of selling or manufacturing for sale, any food products, such as meat markets, butcher shops, fish markets, bakeries, confectioneries, candy manufacturers, ice cream factories, places for handling, preparing for sale of canned or prepared foodstuffs, hotels, boarding houses, restaurants, grocery stores, fruit markets, vegetable markets, vegetable, grocery, and fruit vendors peddling by wagon or otherwise, soda fountains, bottling works, vinegar or pickle factories, and all other businesses handling or having to do with foodstuffs, and shall include every room used for the purpose of any such business in the keeping, storing, manufacturing, preparing, handling, distributing, selling, serving or offering for sale any food products herein defined, whether raw, cooked, or otherwise prepared, or any liquid intended as a food or drink for human beings, and to [sic] all places and premises conducted with any such room or rooms

SEC. 1 (b). The words or term "health department," as used in this ordinance, shall mean and include the health department or any of its authorized representatives.

SEC. 2. Hereafter, it shall be unlawful for any person, firm, organization, or corporation operating a food-products establishment to work or employ any person in said establishment who is infected with or afflicted by any infectious or contagious disease. It shall be unlawful for the proprietor to work in such an establishment if he is infected with or afflicted by any infectious or contagious disease, and all proprietors shall be subject to the medical examination hereinafter provided for.

SEC. 2 (a). Hereafter, it shall be unlawful for any person, firm, corporation, or organization operating a food-products establishment in the city of El Paso to employ any person in said establishment who has not at the time of such employment a certificate, in such person's possession, from a reputable physician showing where said person is to be employed, attesting to the fact that applicant has been examined by said physician within one week prior to the time of such employment and that, as a result of such examination, said applicant for employment was found free from communicable disease, and such certificate shall further show

what laboratory tests were made in such examination and the results shown by such tests.

SEC. 3. Reputable physicians are authorized to examine all persons in accordance with section 2 and section 2 (a), to determine whether or not such persons are infected with any infectious or contagious disease and to issue to each such person so examined who may be free from communicable disease a certificate to that effect, and which certificate shall contain also a true statement of the facts, as required in section 2 (a). A thorough physical examination, which shall include all necessary laboratory tests, shall be made in each case; and all certificates shall be subject to the approval of the city health officer, such approval to be noted thereon by the city health officer or his authorized deputy.

SEC. 3 (a). If any physician shall knowingly make a false statement in any such certificate issued by him, he shall be guilty of an offense and subject to the penalties provided in this ordinance for violation of any of the provisions thereof.

SEC. 4. The medical examinations provided for in the foregoing sections shall be made and such certificates herein provided for obtained at intervals of time not to exceed every six months, and the board of health may require such examination taken and certificate obtained oftener and whenever in their judgment the public health shall require that the same be done.

SEC. 5. Every person, firm, or corporation desiring to maintain a food-products establishment shall immediately make written application for a license stating the name and residence of the applicant, if an individual, or of all the members of the firm if an association or partnership, or the name and residence of the applicant, its officers and directors, if a corporation, the location and description of all the premises where such food-products establishment is to be maintained and a list of the names of all employers or employees of said establishment whose work may require him or her to serve or handle any food products or any food-products utensils in any way.

SEC. 6. Every food-products establishment licensed in accordance with the provisions of this ordinance and all other ordinances shall immediately display the sanitary record card hereinafter described in such places as the department of health may designate. It shall be deemed a violation of this ordinance to remove, alter, deface, destroy, or conceal any sanitary record card in such place except at the direction of the health department. It shall further be deemed a violation of this ordinance if a food or drink establishment fails to notify the department of health or its authorized representatives within 24 hours of any alteration, removal, defacement or destruction of its sanitary record card. The sanitary record card shall be enclosed in a substantial frame provided with a glass front and removable back and of a size to be designated by the health department. Said frame, glass, and back shall be provided at the expense of the establishment and said sanitary record card shall be provided at the expense of the city of El Paso.

SEC. 7. There shall be displayed in each food-products establishment at such places and in as many places as may be required by the health department, copies of this ordinance, the separate responsibilities and liabilities of employer and employee to be clearly designated thereon.

SEC. 8. Every food-products establishment shall be lighted and ventilated to the satisfaction of the health department.

SEC. 9. All floors, walls, and ceilings in food-products establishments must at all times be kept sanitary, and in good repair. Where sawdust is used upon the floors same shall be renewed daily with fresh sawdust.

SEC. 10. All openings including windows, doors, ventilation openings, or any other openings in any rooms in which food products are handled, displayed, served, or sold shall be properly protected against the entrance of insects by the means of wire screening, not less than 16 meshes to the inch. Fans must be in operation at all times as directed by the health department, or all food products must be protected against street dust and flies behind glass show windows or in glass inclosed cases. Food products cannot be handled, displayed, dispensed, or sold on the sidewalks or street, except food sold in original packages.

Food products shall not be handled with the hands where a small scoop or ladle can be used, such as candies, peanuts, and so forth.

The sale of home-dried meat, better known as jerky, is prohibited unless dried under the supervision of the health department.

SEC. 11. No water-closet or urinal shall be within or connected directly with any room in which food products are stored, kept, or offered for sale unless the room in which such water-closet or urinal is situated shall have direct communication with the outside air and be separated from such room with a partition having no other opening than a tightly fitting door, equipped with an automatic

closing device, maintained in proper operating condition, and such door must be kept closed at all times except when in actual use for the purpose of ingress and egress.

Sec. 12. There shall be provided in connection with and convenient to all toilets or urinals under this ordinance, a lavatory equipped at all times with individual towels.

Sec. 13. It shall be the duty of every food-products establishment to provide and at all times maintain in good order and repair, a separate vessel or vessels for garbage and a separate vessel or vessels for rubbish and miscellaneous waste, of the material, construction, and capacity as follows: Garbage containers shall be metal or metal-lined vessels, with close fitting tops, of a capacity each of not less than 5 gallons nor more than 20 gallons. Dry rubbish and miscellaneous waste containers shall be of substantial construction and provided with close-fitting tops when placed on sidewalks, of a capacity each of not less than 15 gallons, nor more than 30 gallons. Each food-products establishment shall provide a sufficient number of garbage and refuse vessels for the peak garbage and trash outputs of that establishment. It shall be the duty of every food-products establishment to cause to be deposited in said garbage or trash vessels all garbage or refuse produced in or brought into or upon the premises of said establishment, as soon as the same is produced or brought therein or thereupon. It shall be unlawful for any food-products establishment or employee thereof to deposit in any vessel or vessels used for garbage, any rubbish or miscellaneous wastes or to deposit in any vessel used for rubbish and miscellaneous wastes, any garbage. All garbage and refuse vessels shall be disinfected daily with a disinfection solution satisfactory to the health department.

Sec. 14. All persons employed in a food-products establishment at the time this ordinance takes effect, and who have not a certificate as required above (sections 2 and 2 (a)), shall have five days thereafter in which to secure one, except this shall never be construed to give any person a longer time than is required by State law in which to secure a certificate, and shall not be construed so as to conflict with any State law.

Sec. 15. The employers and employees of all food-products establishments shall at all times maintain their persons in a cleanly condition and their clothing in as clean a condition as the type of work will permit.

Sec. 16. It shall hereafter be unlawful for any employer or employee engaged in the preparation, sale or serving of food products to use tobacco in any form while so engaged.

Sec. 17. Whenever it shall become necessary to deliver food products upon any sidewalk same shall be placed in such manner as to prevent contamination of said food products. The responsibility for providing the means of preventing contamination shall devolve upon the food-products establishment making the delivery. The responsibility for using properly the means provided shall devolve upon the employee or employees making the delivery.

Sec. 18. All food products shall be stored or displayed in such a manner as to prevent contamination thereof from persons, insects, or filth.

Sec. 19. Whenever it becomes necessary to transport food products, same shall be so covered during transportation as to prevent contamination thereof from persons, insects, dust, or filth.

Sec. 20. In so far as the employer furnishes the means of complying therewith, said employer and employee shall be held responsible and liable as to the use thereof under this ordinance.

Sec. 21. Upon application therefor, it shall be the duty of the health department to make inspections of the premises and equipment and appliances to be used in connection therewith and if found in its opinion to conform from a sanitary standpoint with all the requirements of the laws of the State of Texas and of the ordinances of the city of El Paso in force at the time of inspection, it shall issue to the applicant a license and sanitary record card as hereinafter described: *Provided*, That any food-products establishment being maintained prior to the date of passage of this ordinance upon making application for license as above required, shall be permitted to operate without a license until such time as the health department shall have made the above required inspection: *And provided further*, That all food-products establishments that have heretofore obtained and now have a license in compliance with all the provisions of that certain ordinance defining, licensing, and regulating "food-products establishments" and the operation thereof, passed and approved January 18, 1923, shall not be required to obtain a new license hereunder, but shall in all other particulars forthwith comply with all the provisions of this ordinance. No person, firm, or corporation shall

maintain a food-products establishment in the city of El Paso without having a license therefor as provided in this ordinance.

SEC. 22. The sanitary record card which shall be issued in accordance with the requirements of this ordinance, shall contain the name of the applicant, the address of the food-products establishment, and proper spaces for the insertion of dates, sanitary ratings, and inspector's initials pertaining to as many inspections as the health department may deem advisable, inspection certificates, and other information designated by the health department.

SEC. 23. No license shall be transferable or assignable.

SEC. 24. It shall be the duty of the health department to inspect all food-products establishments as often as possible and at each inspection to insert on the sanitary record card the date of inspection, the sanitary rating, and the inspector's initials, and to attach to said card a copy of the last inspection made.

SEC. 25. The judge of the corporation court may revoke or suspend any license issued under the terms of this ordinance whenever it shall appear in any case to his satisfaction that a licensee has wilfully violated any of the sanitary laws of the State of Texas or any of the sanitary ordinances of the city of El Paso, Tex. After such license shall have been revoked it shall not be reissued until the sanitary defects in question shall have been remedied to the satisfaction of the health department, but the license shall not in any event be reissued before the expiration of seven days from the date of revocation.

SEC. 26. It shall be the duty of every person, firm, or corporation operating a food-products establishment whenever a new employee is engaged, to notify the health department promptly of such fact, giving the name of such employee, and to present for the approval of the city health officer such employee's certificate of medical examination provided for in this ordinance.

SEC. 27. Every person, whether employer or employee or physician, and every firm or corporation violating any of the provisions of this ordinance, shall, upon conviction thereof, be fined in any sum not less than \$5 nor more than \$100: *And provided further*, That any person, firm, or corporation who shall be convicted for a second offense under the provisions of this ordinance shall be fined in a sum not less than \$25 nor more than \$200; and each day that any such food-products establishment shall be conducted without a license as herein provided shall constitute a separate offense.

SEC. 28. If any section or portion of this ordinance shall for any reason be declared invalid or unenforceable, nevertheless the remaining sections and portions thereof shall remain in full force and effect and shall not be impaired thereby.

LOS ANGELES, CALIF.

Table Water and Soft Drinks—Manufacture, Bottling, and Sale—Registration of Brands. (Ord. 46909, New Series, August 27, 1923)

SECTION 1. It shall be unlawful for any person, firm, or corporation to bring or receive, or to cause or permit to be brought or received into the city of Los Angeles, for sale or to sell, exchange or deliver, or to offer for sale, exchange, or delivery, or to cause or permit to be sold, exchanged, or delivered, or to be offered for sale, exchange, or delivery, or to have in possession for sale, exchange, or delivery any table water or beverage other than milk, except in accordance with the provisions of this ordinance: *Provided, however*, That this ordinance shall not apply to beverages which are manufactured outside of the State of California in sealed bottles in which they are to be delivered to the ultimate consumer: *And provided further*, That this ordinance shall not apply to beverages prepared for immediate consumption on the premises where they are prepared.

SEC. 2. It shall be unlawful for any person, firm, or corporation to engage in the business of manufacturing or bottling or to sell or to offer for sale, or to bring into or to cause or permit to enter the city of Los Angeles for the purpose of selling or offering for sale any table water or beverage, other than milk, unless the owner, manager, operator, or person in charge of the plant in which said beverage is manufactured or bottled has first obtained from the health commissioner of the city of Los Angeles a permit to conduct or carry on said manufacturing or bottling business.

Permits to manufacture or bottle table water or beverages other than milk may be granted to any applicant who shall apply to said health commissioner for a permit so to do. Said application may be made by said applicant either for himself or on behalf of any person, firm, or corporation. Said application

shall clearly state the name and address of the applicant for the firm or corporation in behalf of which said application is made. Said application shall further contain a description of the property by street and number wherein or whereon said applicant, or the firm or corporation on behalf of whom said application is made, is conducting or proposing to conduct his or its principal place of business, and if said principal place of business has no street or number, then such description as will enable the same easily to be found.

Said application shall also clearly state all facts necessary to assist the health commissioner in determining whether the person, firm, or corporation is competent to properly conduct said manufacturing or bottling business, as well as any facts which may be necessary to aid said health commissioner in determining whether or not the plant and its equipment is such that it may be conducted in a sanitary manner.

Said applicant shall register with the health commissioner a trade-mark, brand, or other designation not used by any other person, firm, or corporation, which designation shall appear upon each bottle or other package in the identical manner in which said designation is registered with said health commissioner. It shall be unlawful for any person, firm, or corporation to sell, or to offer for sale, or to have in possession for the purpose of selling, offering for sale, or delivering any table water or beverage other than milk, which does not bear a registered designation, and it shall be unlawful for any person, firm, or corporation to use any designation other than the one registered by said person, firm, or corporation with the said health commissioner or to use any package upon which appears any designation registered with the said health commissioner other than the designation registered by said person, firm, or corporation for its own use.

If it appears to the health commissioner after due investigation that the applicant, or the firm or corporation on behalf of whom said application is made, is competent to properly conduct said manufacturing or bottling business, and that the plant and its equipment are such that the same may be operated in a sanitary manner, the health commissioner, upon receipt of the fee prescribed in section 3 of this ordinance shall issue to said applicant, or the firm or corporation on behalf of whom said application has been made, a permit to conduct or carry on said manufacturing or bottling business.

The health commissioner shall also have the authority to establish rules and regulations not inconsistent with the provisions of this ordinance providing for the proper maintenance of sanitary conditions of plants or establishments and utensils used in the manufacturing and bottling of table water or beverages, other than milk, and may revoke or suspend any permit issued in accordance with the provisions of this section at any time if it appear to the satisfaction of said health commissioner that such manufacturing establishment is not conducted in a sanitary manner, or that any of said rules and regulations, or that any of the provisions of this ordinance have been violated: *Provided, however*, That no permit shall be revoked unless a hearing and notice thereof be first given the permittee, as provided by the terms of section 2 of ordinance No. 19,562 (new series).

SEC. 3. The fee for the issuance of the permit required by section 3 [2] of this ordinance shall be the sum of \$40 per year, payable quarterly in advance, and each permit so issued shall expire June 30, of each year, unless sooner revoked for cause, and no such permit shall be transferable.

SEC. 4. All materials used in the manufacture of any table water or beverage other than milk shall be stored, handled, transported, and kept in such a manner as to protect said materials from spoilage, contamination, and unwholesomeness. It shall be unlawful to use any ingredient or material, including water, in the manufacture or bottling of any table water or beverage other than milk, which is decomposed or contaminated, or which may render the product unwholesome, unfit for food, or injurious to health.

SEC. 5. *Requirements for bottling shops.*—That concrete or other similar construction of floors be maintained in the bottling room, suitably drained to keep the same in a sanitary condition; that all sirups be handled in a separate room from the bottling rooms, said room to be thoroughly clean and screened; that all finished sirups be handled only in glass enameled tanks or glazed crockery, and that proper connections be provided of blocked tinned pipe or pure rubber hose feed to the filling machines; that such method be used for the washing of bottles that will properly wash and sterilize the same.

SEC. 6. Any person, firm, or corporation violating any of the provisions of this ordinance shall be deemed guilty of a misdemeanor, and upon conviction thereof,

shall be punishable by a fine of not more than \$500, or in [by] imprisonment in the city jail for a period of not exceeding six months, or by both such fine and imprisonment.

SEC. 7. That ordinance No. 44,907 (new series) entitled, "An ordinance licensing and regulating the manufacture and bottling of bottled water and beverages commonly known as soft drinks, providing rules and regulations for sanitary conditions in bottling plants and establishments, and providing for a penalty for the violation thereof,["] approved October 30, 1922, be and the same is hereby repealed.

MOBILE, ALA.

Eating Establishments—Permit—Inspection—Grading—Sanitary Requirements—Employees. (Ord. June 9, 1925)

SECTION 1. Definitions—

Eating establishment.—An eating establishment is hereby defined to be any place where food of any kind is prepared for sale or sold for public consumption.

Restaurant.—A restaurant is an eating establishment where food is prepared and served to patrons at tables.

Short-order café.—A short-order café is an eating establishment where food is prepared and served to patrons at a counter.

Cafeteria.—A cafeteria is an eating place where food is prepared and is on display, and is served directly to patrons as selected, patrons serving themselves entirely or in part.

Luncheonette.—A luncheonette is an eating establishment in which a limited variety of food is prepared and is served directly from heated or chilled containers to patrons at a counter.

Sandwich stand.—A sandwich stand is an eating establishment at which this type of food, including "hamburgers," "barbecue," "coney islands," "hot dogs," etc., forms a majority of that served.

Employee.—An employee is any person who handles food during the course of its preparation or service, or who comes in contact with the compartments, utensils, or dishes in which it is stored, prepared, or served. This is intended to include the proprietor or any member of his family who occasionally or incidentally acts in the capacity of a bona fide employee.

Prepared food.—Prepared food is defined to be any substance which has been prepared, such as by peeling, slicing, boiling, roasting, frying, broiling, mixing, etc., for consumption by patrons.

Health officer.—The health officer shall be taken to mean the health officer of Mobile County, in person, or his authorized representative.

SEC. 2. *Permits.*—It shall be unlawful for any person, firm, association, or corporation, to operate an eating establishment in the city of Mobile, who does not possess an unrevoked permit from the health officer, and in whose place of business such permit is not posted in a conspicuous place. This section shall apply to temporary or itinerant, as well as to permanently established, places of business.

Such permits shall be furnished by the health officer, without cost, upon written application by the owner or operator of the eating establishment, when, and not before, the health officer has satisfied himself that the provisions of this ordinance have been complied with as regards water connections, sewerage, screens, etc. This permit must be obtained before a license to do business in the city of Mobile may be issued by the official authorized to issue licenses.

Such a permit may be revoked by the health officer upon the violation by the holder of any of the terms of this or any other health ordinance of the city of Mobile: *Provided*, That the holder of said revoked permit shall, after complying with such revocation, have the right of appeal to the county board of health, in the event that the permit is not renewed by the health officer.

SEC. 3. *Placarding.*—Every eating establishment shall display, in a place designated by the health officer, a card furnished by the health officer stating the nature of the establishment and its grade.

SEC. 4. *Inspection of eating establishments for the purpose of grading or regrading.*—At least once during each grading period the health officer shall inspect every eating establishment within the city of Mobile. In case the health officer discovers the violation of any item of sanitation, he shall make a second inspection after a lapse of such time as he deems necessary for the defect to be remedied (but not before the lapse of three days), and the second inspection, or one subsequent to it, shall be used in determining the grade of the establishment.

Reinspections made within the last two days of a grading period shall not be used as a basis for determining grades.

One copy of the inspection report shall be posted by the health officer in a conspicuous place in the establishment inspected, and shall not be removed by any person except the health officer.

SEC. 5. *The grading of eating establishments.*—At least once every 12 months the health officer shall announce through the records of the board of commissioners of the city of Mobile, the grades of all eating establishments within the city of Mobile. Said grades shall be based upon the following standards:

GRADE A RESTAURANTS

(1) *Housing.*—The building in which the establishment is housed shall—

(1a) Be of permanent construction, offering and affording complete protection from the elements;

(1b) Have whole and sound floor, walls, and ceiling; and

(1c) Be of proportion and dimensions ample for the equipment and processes employed therein.

(2) *Kitchen.*—The kitchen, or place in which food is prepared, shall be separate from the dining room, and no food shall be served to patrons in any part of the kitchen

(3) *Lighting.*—Natural and artificial lighting in the kitchen shall be sufficient and adequate for all the processes of cooking and scullery work, and for the avoidance of deep shadows.

(4) *Ventilation.*—The change of atmosphere in the kitchen shall be sufficiently frequent and rapid to avoid the accumulation of smoke, fumes, or odors.

(5) *Walls and ceiling.*—The surface of walls and ceilings shall be smooth; (5a) shall be painted with a light-colored paint; and (5b) shall be kept clean.

(6) *Floor.*—The floor of the kitchen shall be whole and sound; (6a) shall be properly drained; and (6b) shall be kept clean.

(7) *Water and sewage.*—The kitchen shall be equipped with hot and cold water connections; and (7a) all liquid wastes shall be disposed of in accordance with the ordinances of the city of Mobile, or in a manner approved by the health officer.

(8) *Screens.*—All openings to the exterior shall be effectively screened with wire screen cloth, not coarser than 16 meshes to the inch. (8a) Screen doors shall be equipped with self-closing devices and shall open outwards.

(9) *Toilet and handwashing facilities.*—Toilets used by employees shall conform to the specifications of the ordinances of the city of Mobile, and (9a) shall not open directly into the kitchen or into any space in which food is prepared or stored. (9b) Handwashing facilities, other than the utensils or dishwashing sinks, shall be provided near the toilet. (9c) Common towels shall not be used nor furnished.

(10) *Locker room.*—A locker room, or space in which employees' clothes are to be changed and kept, shall be provided. This room shall not be used for the preparation or storage of food.

(11) *Pantry and storage room.*—All supplies shall be stored in a manner insuring their proper protection from contamination, in a space separated from that in which food is prepared.

(12) *Equipment.*—The following equipment shall be in use: (12a) Table tops on which food is prepared or served shall be impervious to liquids. (12b) Dish cupboards shall be provided for the storage of dishes, plates, cups, and saucers between uses. (12c) An automatic (not manual operated) dishwasher shall be provided for the washing of all dishes, glassware, and silverware used in the service of food or drink. All eating utensils shall be scalded between uses.

(13) *Refrigeration.*—Refrigeration shall be adequate to prevent the spoilage of foodstuffs.

(14) *Food protection.*—Raw and prepared food shall be effectively protected from dust, flies, vermin, or unnecessary contact.

(15) *Cleanliness.*—All stationary surfaces, the interiors of refrigerators and ice boxes, cooking utensils, and serving implements shall be clean.

(16) *Vermin.*—There shall be freedom from vermin, that is, rats, mice, roaches, etc., and flies.

(17) *Domestic use.*—The kitchen, or any place in which food is prepared or stored, or any space opening directly into any space so used, shall not be used for sleeping or any other domestic purposes, such as congregation of members of the family or visitors, sewing, etc.

DINING ROOM

(18) *Lighting*.—Natural and artificial lighting in the dining room shall be sufficient for reading purposes (by the inspector), and for the avoidance of deep shadows.

(19) *Screens*.—All openings to the exterior shall be screened with wire screen cloth, not coarser than 16 meshes to the inch. (19a) Screen doors shall be provided with self-closing devices, and shall open outward.

(20) *Food—Protection*.—All foods, relishes, condiments, etc., shall be protected from contamination by dust, flies, and vermin. (20a) Milk shall be served in the original containers.

(21) *Cleanliness*.—All stationary surfaces, service china and silver, glassware, napery, and containers shall be kept clean.

SURROUNDINGS

(22) *Protection of garbage*.—Garbage and wastes shall be disposed of in a manner resulting in the minimum exposure to flies or domestic animals, and with the least tendency toward nuisance and in accordance with the ordinances of the city of Mobile.

(23) *Insanitary and objectionable conditions*.—The establishment shall be entirely free of unnecessary litter or rubbish, such as paper, empty containers, etc.

EMPLOYEES

(24) *Freedom from disease*.—All employees shall be free of tuberculosis and typhoid fever, and other diseases, as indicated by tests applied by the health officer.

(25) *Cleanliness*.—All employees shall wear clean clothes, and, when preparing, handling, or serving food, shall have clean hands and persons.

Grade B restaurants.—Grade B restaurants are restaurants which conform to all Grade A specifications except the following items of equipment or specifications: (4), (5a), (10), (11), and (12c).

Grade C restaurants.—Grade C restaurants are restaurants which conform to all grade B restaurant specifications except the following items: (1c), (3), (6a), (9b), (12b), (16), (18), and (23).

Grade D restaurants.—Grade D restaurants are restaurants which do not conform to grade C restaurant specifications, but which must, nevertheless, conform to items (7), (8), (9), (9a), (9c), (17), (19), (19a), (20), and (20a) of the specifications.

Short-order cafés.—The specifications for the four grades of short-order cafés shall be identical with the specifications for the four grades of restaurants except that food may be prepared in the space in which it is served.

Cafeterias.—The specifications for the four grades of cafeterias are identical with the specifications of the four grades of restaurants, except as follows: Item (20) shall be a specification for all grades.

Luncheonettes.—The specifications for the housing, kitchen (whether or not immediately connected with the luncheonettes), surroundings, and employees for the four grades of luncheonettes are identical with the specifications of the four grades of restaurants, except item (12c). Hand washing of dishes, glasses, and cutlery, provided it be effective, is accepted for a grade A rating.

The specifications for the service of the luncheonettes, corresponding to the dining room of a restaurant, shall be identical with those of the four grades of restaurants, except (19). Only freedom from flies is specified.

Sandwich stands (grade A).—Grade A sandwich stands are sandwich stands at which the following specifications are found to be complied with:

(1) *Housing*.—The space in which it is housed shall—(a) afford complete protection from rain; (b) and shall have a whole and sound floor of wood or more permanent construction.

(2) *Lighting*.—The natural and artificial lighting shall be sufficient and adequate for all the purposes of cooking, serving, and eating the food prepared and sold therein.

(3) *Walls and ceilings*.—All interior surfaces shall be painted with light-colored paint at least once a year.

(4) *Water*.—An ample supply of water and heated water shall be available for all needs. Water connections are required if available.

(5) *Sewerage*.—Waste disposal shall conform to the ordinances of the city of Mobile.

(6) *Toilets*.—Toilets used by employees while on duty shall conform to the ordinances of the city of Mobile. (6a) Shall not open directly into any part of the stand. (6b) Hand-washing facilities shall be provided. (6c) Common towels shall not be used or furnished.

(7) *Equipment*.—The following equipment shall be in use: (7a) Table tops on which food is prepared or served shall be impervious to liquids. (7b) Facilities for cleaning and scalding any service ware in use shall be provided.

(8) *Refrigeration*.—Refrigeration shall be adequate to prevent spoilage of foodstuffs.

(9) *Food protection*.—Raw and unwrapped food shall be protected from contamination by dust, flies, vermin, or unnecessary contact.

(10) *Cleanliness*.—All stationary surfaces, the interiors of ice boxes and storage places, cooking surfaces and utensils, and serving implements and ware shall be clean.

(11) *Vermin*.—There shall be freedom from vermin—that is, rats, mice, roaches, etc., and flies.

(12) *Domestic use*.—No part of the stand, nor any space opening directly into it, shall be used for sleeping or domestic purposes.

(13) *Protection of garbage*.—Garbage and wastes shall be disposed of in a manner resulting in the minimum exposure to flies, vermin, or domestic animals, and with the least tendency toward nuisance and in accordance with the ordinances of the city of Mobile.

(14) *Insanitary or objectionable conditions*.—The establishment shall be entirely free of unnecessary litter or rubbish, such as paper, empty containers, etc.

(15) *Freedom of employees from disease*.—All employees shall be free of tuberculosis and typhoid fever, and other diseases, as indicated by tests applied by the health officer.

(16) *Cleanliness of employees*.—All employees shall wear clean clothes, and, when preparing, handling, or serving food, shall have clean hands and persons.

Grade B sandwich stands.—Grade B sandwich stands are those which conform to grade A sandwich stand specifications, except in the following items of equipment or condition: Item (2).

Grade C sandwich stands.—Grade C sandwich stands are those which conform to Grade B sandwich stand specifications, except in the following items of equipment or condition: Items (1), (1b), (6b), (11) and (14).

Grade D sandwich stands.—Grade D sandwich stands are those which do not conform to Grade C sandwich stand specifications, but which must conform with items (4), (5), (6), (6c), and (12).

Sec. 6. Supplementary regrading.—At any time between regular scheduled announcements of eating establishments any eating establishment proprietor may make application for the regrading of his place of business.

Such application for regrading must be submitted in writing, and must include a list of the equipment installed or changes in method adopted to conform to the specifications of a higher grade than that in which the establishment was placed by the last previous inspection.

Upon receipt of such an application, the health officer shall make an inspection of said establishment within a period of 48 hours. If the existing low grade was due entirely to a lack of specified equipment, the health officer shall immediately award a higher grade in case such equipment is found to have been installed.

If the existing low grade was due to faulty methods, and these are found to have been corrected, the health officer shall immediately place the said establishment on probation for a period of 10 days. If during this time, no failure to follow the specified methods are [is] discovered, the health officer shall immediately award a higher grade.

At any time between the regular announcement of grades, the health officer may lower the grade of any eating establishment, if, as a result of inspection, a lower grade shall be justified in accordance with this ordinance.

Sec. 7. Classification of eating establishments.—Hotel dining rooms, tea rooms (interior or exterior), and all establishments in which food is served at tables shall be classified as restaurants.

In cases in which eating establishments serve food at both counters and tables, the classification (as between restaurant and café) shall be determined by the majority of the seating accommodations (tables or counters).

In case of doubt as to the proper classification, the question shall be decided by the health officer.

SEC. 8. *Proscribed eating establishments.*—Eating establishments which do not conform to any of the grades provided for the classes in which they fall shall be closed by the health officer. Operation of such an establishment after such closure shall constitute a violation of this ordinance.

SEC. 9. *Special permits.*—Special permits for limited periods of time may be issued for public eating places where the proceeds are devoted to some charity or eleemosynary cause.

Special permits may be issued for the sale of lunches or food from baskets or trays sold to laborers on the water front; *Providing*, That sanitary provisions which may be prescribed by the health officer are complied with.

SEC. 10. *Penalty.*—Any person, firm, association, or corporation who shall violate any provision of this ordinance shall be fined not more than \$100, at the discretion of the recorder.

MORRISTOWN, N. J.

Bakery Products—Protection from Contamination. (Reg. Bd. of H., June 29, 1926)

SECTION 1. All vehicles from which any bread, biscuit, pretzel, pie, or other bakery product is sold in the town of Morristown, N. J., shall be kept in a clean and sanitary condition, and all baskets, boxes, or other receptacles in which any of the aforesaid products are conveyed through the streets shall be closely covered in a way and manner that will protect them from any pollution whatsoever; said vehicle[s] shall be at all times subject to the inspection of the board of health or any employee thereof.

SEC. 2. No bakery product shall be sold in the town of Morristown, N. J., unless the same shall be closely wrapped in clean paper covering, said paper covering impervious to any pollution whatsoever from dust or vermin, or from the hands of any person or persons, said wrapping to be done at the shop or plant where said product is made. The use of newspaper or any other waste paper for such wrapping is strictly prohibited.

SEC. 3. Any person or persons, partnership or corporation who shall violate, or authorize or cause violation of, any of the provisions of this ordinance shall, upon conviction thereof, forfeit and pay a fine or penalty of not less than \$10 nor more than \$25, besides the cost of conviction, for each and every violation thereof, to be imposed and collected in the manner provided by law in such cases.

NEW YORK, N. Y.

Nonalcoholic Carbonated Drinks or Beverages—Manufacture, Bottling, Labeling, and Sale—When Deemed Adulterated and Misbranded. (Reg. Bd. of H., July 30, 1925)

[Sanitary code] SEC. 139-B. *Nonalcoholic carbonated drink or beverages; sale of adulterated or misbranded prohibited; the term "nonalcoholic," "adulterated" and "misbranded" defined.*—No person shall sell, or offer for sale, deal in or supply, or have or possess with intent to sell, offer for sale, deal in or supply, any nonalcoholic carbonated drink or beverages which is adulterated or misbranded, or otherwise than in accordance with the regulations of the board of health.

The term "nonalcoholic carbonated drink or beverage" as herein used shall be taken to mean and include all carbonated beverages flavored or unflavored, and all nonalcoholic carbonated drinks or beverages of any kind or character excepting artificial or natural mineral, spring, or other waters, for drinking purposes, or still, or carbonated table or medicinal water, and beverages made in imitation of beer or similar drinks.

The provisions of this section shall not prohibit the use of any harmless ingredient in the manufacture of nonalcoholic carbonated drinks or beverages.

Nonalcoholic carbonated drink or beverage as herein defined shall be deemed to be adulterated:

(1) If when sweetened it contain less than 7 per cent by weight of sugar (sucrose) in the finished product, except dry ginger ale which shall contain not less than 5 per cent of sugar (sucrose).

(2) If it contain more than 0.004 per cent by weight of saccharin or other synthetic sweetening agent in the finished product.

(3) If it contain any boric acid or borate, salicylic acid or salicylate, formaldehyde, hydrofluoric acid or fluoride, fluoborate, fluosilicate, or other fluorine compounds or other prohibited food preservatives or any substance deleterious or injurious to health.

- (4) If it contains any uncertified coal tar color.
- (5) If it contains any added saponin.
- (6) If it consist in part of diseased or decomposed or putrid or rotten animal or vegetable substance, or of any portion of any vegetable unfit for human food.

Nonalcoholic carbonated drink or beverage as herein defined shall be deemed misbranded:

(a) If it be labeled or misbranded so as to deceive or mislead the purchaser or consumer, or purport to be a foreign product when it is not.

(b) If the presence of saccharin or other synthetic sweetening agent is not declared in clear, legible type on the label attached to the bottle or container or cap.

(c) If in package form and the contents are stated in terms of weight or measure, such weight or measure be not plainly and correctly stated on the outside of the package.

(d) If the container, package, label, display sign, or any advertising matter shall bear any statement, design, or device regarding the ingredients or the substance contained therein, which statement, design, or device shall be false or misleading in any particular.

[Regulations governing the manufacture and sale of nonalcoholic drinks.]
REGULATION 1. *Colors.*—(a) Only harmless vegetable colors or certified coal tar colors permitted by the United States Department of Agriculture shall be used in the manufacture of nonalcoholic carbonated drinks or beverages.

(b) The use of caramel is permitted in the manufacture of nonalcoholic carbonated drinks or beverages.

REG. 2. *Labels.*—(a) All closed containers or packages in which nonalcoholic carbonated drinks or beverages are held, kept, offered for sale or sold must be plainly and legibly marked or labeled with the name or designation of such drink contained therein and shall bear the name and place of manufacture of the said beverage or drink.

(b) The term "label" as used in this section shall be taken to mean and include, any legend, descriptive matter, or design appearing upon the container or cap, or any letters, circulars, or pamphlets to which reference is made either on the label attached to the package or on the package itself.

(c) Carbonated nonalcoholic drinks or beverages, soda, soda water, are not imitation products, but are often of the same color and flavor of a particular fruit that is imitated. Such beverages shall be labeled, for example as "soda," "soda water," "artificial color and flavor."

(d) The use of imitation colors or imitation flavors in any carbonated nonalcoholic drink or beverage shall be declared on the label attached to the bottle or other closed container. The labels or cap attached to the bottle or other closed container must be plainly marked with the words "artificial color," "artificial flavor" in type or print not less than 8-point (size, bavier), or the color of the printing be in marked contrast to the color of the ground upon which it is printed.

REG. 3. *Crown caps; reuse prohibited.*—The reuse of crown caps is prohibited.

REG. 4. *Manufacture or bottling of nonalcoholic drinks or beverages in a stable, sleeping room, etc., prohibited.*—Nonalcoholic drinks shall not be manufactured or bottled in any stable or room used for sleeping purposes, or in any room or place which is dark, damp, poorly ventilated, dirty, or unsanitary or in direct communication with a stable or room used for sleeping purposes.

REG. 5. *Walls and ceilings; construction and repair.*—The walls and ceilings of all manufacturing or bottling establishments wherein nonalcoholic drinks are prepared or bottled shall be of a smooth, hard material and must be kept clean and sanitary and in good repair.

REG. 6. *Floors, construction, drainage, and repair.*—The floors of all manufacturing or bottling establishments shall be smooth and water-tight and shall be kept clean and sanitary and in good repair. Floors, when required, shall be properly graded and drained into one or more drains properly trapped and sewer or cesspool connected.

REG. 7. *Lighting.*—All rooms wherein the bottling, manufacturing, or storing of nonalcoholic drinks is carried on shall be properly and adequately lighted so that all parts thereof may be readily inspected.

REG. 8. *Toilet facilities.*—Sufficient and adequate toilet facilities shall be provided for employees separate and apart from rooms in which nonalcoholic carbonated drinks are prepared, sold, bottled, or stored in all such establishments.

REG. 9. *Washing facilities, soap, towels.*—Suitable, sufficient, and accessible washing facilities with special and individual towels shall be provided for the

use of employees in all establishments where nonalcoholic drinks are manufactured, bottled, kept, or stored.

REG. 10. *Clean, washable outer garments to be provided.*—Clean, washable outer garments shall be provided and worn in all such establishments by all persons engaged in the preparation of nonalcoholic drinks.

REG. 11. *Dressing rooms to be provided.*—Suitable dressing rooms shall be provided in all such establishments in which employees shall change and store their clothes, and no wearing apparel, boots, or shoes shall be kept or stored in any workroom.

REG. 12. *Waste material, containers, and removal regulated.*—Suitable containers shall be provided for holding of waste material in such establishments and such material shall be removed daily from the premises.

REG. 13. *Vats, pipes, pumps, etc.; construction regulated.*—All storage vats, mixing vats, pumps, pipes, and other apparatus used in such establishments shall be of sanitary construction, all angles and joints being smoothly soldered. All pumps and pipes must be so arranged that they can be easily taken apart for cleansing. The use of highly soldered elbow joints is prohibited.

REG. 14. *Vats, tanks, etc.; maintenance; to be kept clean and in good repair.*—All vats, tanks, and other receptacles used in such establishments shall be so constructed and arranged as to permit of thorough cleansing and shall be kept clean, sanitary, and in good repair.

REG. 15. *Vats, tanks, etc., to be provided with covers.*—All vats, tubs, and other receptacles used in such establishments shall be provided with suitable covers and shall be kept covered.

REG. 16. *Filters to be cleaned and covered.*—All filters used in such establishments shall be cleaned and kept in a cleanly condition at all times, and shall be kept covered.

REG. 17. *Bottles, containers, etc.; sterilization and cleansing after use.*—All bottles, vessels, and other containers used in the manufacture, bottling, handling, or selling of nonalcoholic drinks shall be properly cleansed and sterilized after use thereof; and no such bottle, vessel, or other container shall under any circumstances be again placed in use in such establishments unless same shall have been thoroughly cleansed and sterilized after previous use thereof.

REG. 18. *Washing facilities for apparatus, etc., to be provided.*—Suitable and adequate apparatus shall be provided in all such establishments for the sterilization of all bottles, utensils, containers, and vessels.

Almond Paste and Kernel Paste—Keeping or Sale Prohibited when Adulterated or Misbranded—When Deemed Adulterated and Misbranded. (Reg. Bd., of H. July 30, 1925)

[Sanitary Code.] SECTION 139-D. *Almond paste; kernel paste; sale of adulterated or misbranded prohibited; the terms "almond paste," "kernel paste," "adulterated" or "misbranded" defined.*—No almond paste or kernel paste which is adulterated or misbranded shall be held, kept, offered for sale, or sold as food in the city of New York, nor shall any such almond paste or kernel paste be kept or stored anywhere in the said city.

The term "almond paste" as used herein shall be deemed to mean and include only the plastic product consisting of blanched and ground almonds, cooked to a proper consistency with the addition of sugar (sucrose) and which shall contain not more than 40 per cent of total sugars.

The term "kernel paste" as used herein shall be deemed to mean and include only the plastic product consisting of the blanched and ground kernels of apricots, peaches, or plums (prunes) freed from hydrocyanic acid and cooked to a proper consistency with the addition of sugar (sucrose) and which shall contain not more than 40 per cent of total sugars.

Almond paste or kernel paste shall be deemed to be adulterated:

1. If more than 40 per cent of total sugars be contained therein.
2. If any added antiseptic or preservative be found therein.
3. If any diseased or decomposed or putrid or rotten animal or vegetable matter or substance or any portion of any animal or vegetable unfit for human food enter into its composition or be found therein.
4. If any substance has been added, mixed, or packed with it so as to reduce or lower or injuriously affect its quality or strength.

Almond paste or kernel paste shall be deemed to be misbranded if it be labeled or branded so as to deceive or mislead the purchaser or consumer regarding the ingredients or the substances contained therein, which statement, design, or device shall be false or misleading in any particular.

Food Handlers—Physical Examination. (Reg. Bd. of H., March 1, 1923)

[Sanitary Code.] SECTION 146. *Employment of persons affected with infectious disease prohibited.*—No person who is affected with any infectious disease in a communicable form shall work in any place where food or drink is prepared, cooked, mixed, baked, exposed, bottled, packed, handled, stored, manufactured, offered for sale, or sold, and no food dealer shall employ any person unless such person file with the employer a proper medical certificate issued by the board of health to the effect that the said employee is free from any infectious disease in a communicable form. Such persons, however, may in their discretion be examined by their own private physicians: *Provided*, Such examinations are performed in accordance with regulations of the board of health. Such certificate shall be operative for one year from date of issue thereof and may be revoked at any time by the board of health. This section shall take effect November 1, 1923.

[Regulations governing the physical examination of food handlers, and relating to section 146 of the Sanitary Code.] REGULATION 1. *Result of physical examinations to be reported on official blanks.*—The result of physical examinations performed by physicians in accordance with the provisions of section 146 of the Sanitary Code shall be reported to the department of health upon official blanks furnished for such purpose. Such blanks shall be signed by the physician making the examinations and shall contain the following information:

Name _____
 Age _____ Male _____ Female _____ Nativity _____
 Address _____
 Borough _____ Occupation _____
 Where employed _____
 Address _____ Borough _____
☒ Check (✓) Yes or No for each of the following disease conditions:

LUNGS**Tuberculosis:**

Active—Yes _____ No _____
 Inactive—Yes _____ No _____

Specify signs of other lung diseases.

If signs of tuberculosis exist, send applicant to clinic for sputum examination and for decision as to permission to work.

VENEREAL DISEASES

Syphilis-chancere: Yes _____ No _____
 Mucous patches: Yes _____ No _____
 Skin lesions: Yes _____ No _____
 Cardiac lues: Yes _____ No _____
 Cerebrospinal lues: Yes _____ No _____

If active signs are present, send applicant to clinic.

Has Wassermann test been taken, if inactive syphilis exists?

Yes _____ No _____

Encircle result: Negative 1 pl:s 2 plus 3 plus 4 plus.

Gonorrhea:

Active—Yes _____ No _____
 Chronic—Yes _____ No _____
 Chancroid—Yes _____ No _____

If acute gonorrhea or chancroid exists, send applicant to clinic.

If chronic gonorrhea exists, has urethral smear been taken?

Yes _____ No _____
 Result—Positive _____ Negative _____

TYPHOID

Does applicant give history of typhoid?

Yes _____ No _____
 Date _____

Has case of typhoid occurred in immediate family or place of residence?

Yes _____ No _____
 Date _____

If history of either of above is given, send applicant to clinic for Widal and stool examination.

SKIN DISEASE

Scabies: Yes.....	No.....
Pediculosis: Yes.....	No.....
Favus: Yes.....	No.....
Ringworm: Yes.....	No.....
Tubercular lesions: Yes.....	No.....

If any of the above exist, send patient to clinic.

I hereby certify that the above-named person has been thoroughly examined by me as to the presence of evidence of communicable disease and has been found (free) (not free) from such disease.

Date.....

Dr.....

Address.....

REG. 2. *Certificate to be issued by the department of health.*—When such official blank, properly filled out and signed, shall have been filed with the department of health and after the department's approval, a certificate shall be issued by the department of health to the person so examined. Such certificate shall specify the date of such physical examination, and the freedom from any infectious disease in communicable form on the date of such examination. Such certificate shall not be transferred and shall not be used by any other person than the one to whom it has been issued.

REG. 3. *Conditions under which certificates are issued.*—Certificates issued under and by virtue of the provisions of regulation 7 hereof shall not be construed to authorize the employment of persons to whom issued, where such persons thereafter contract, or are infected with, or have been or are exposed to, any infectious disease requiring isolation or exclusion from their employment by any regulation, law, or ordinance; nor shall such certificates be construed as nullifying or limiting the power of the department of health to require a reexamination of such persons in its discretion.

REG. 4. *Medical certificates; issuance.*—No medical certificate showing a food handler's freedom from infectious disease shall be issued by the department of health unless the physician making such examination shall have been duly authorized to do so by the department of health.

REG. 5. *Authorization of physicians.*—Authorizations to make physical examinations of food handlers may be obtained by any duly licensed physician upon application in writing to the department of health.

REG. 6. *Revocation of authorization.*—Failure of physicians to strictly comply with the printed instructions prescribed by the health department governing the examination of food handlers shall constitute cause for the revocation by the board of health of the said authorization.

REG. 7. *Manner of examination.*—In the examination of food handlers the physician must make a complete physical examination of the said person, employing standard and recognized methods for determining the presence of communicable diseases and must submit a report on each individual examined, on a form provided by the department of health and signed by such examining physician.

Such report of the physical examination of a food handler shall give the following information:

1. The presence of any evidence indicating the existence of active, arrested, or suspected tuberculosis, or any signs of an abnormal condition of the lungs.

2. The presence of any evidence of active or arrested syphilis, or of gonorrhea or chancre.

3. Evidence or history showing that the food handler has had typhoid fever at any time in the past or is likely to be a typhoid carrier.

4. Evidence that the food handler is suffering from a parasitic or other form of communicable disease of the skin.

5. Evidence of any other infectious disease in a communicable form.

REG. 8. *Report of unusual condition of lungs, etc.*—In the examination of food handlers, if any abnormal condition of lungs, skin, mucous membrane, or other part of the body be found which may indicate the presence of an infectious disease, the examining physician shall forthwith refer such case to the department of health, and make written report of his findings to the department of health.

REG. 9. *Revocation of medical certificates.*—Whenever a food handler secures a medical certificate upon false or fraudulent statement, such certificate shall be revoked.

REG. 10. Food dealers to report suspicious circumstances.—Every food dealer shall be required to immediately report to the department of health the name and address of any employee whom he knows or has reason to suspect to be suffering from an infectious disease that may be communicated to others.

Sirup—Manufacture. (Reg. Bd. of H., April 29, 1924)

[Sanitary code.] **SEC. 148a. Sirup; manufacture and sale regulated.**—No person shall manufacture any sirup for sale without a permit issued therefor by the board of health or otherwise than in accordance with the terms of said permit and the regulations of the said board.

Butter, Cheese, and Eggs—Sale. (Reg. Bd. of H., June 25, 1926)

[Sanitary code.] **SEC. 151-B. Butter, cheese, and eggs, sale regulated; permit required.**—No person shall have, handle, keep, offer for sale, or sell any butter, cheese, or eggs without a permit from the board of health or otherwise than in accordance with the terms of the said permit and the regulations of the said board.

Shellfish—Taking, Handling, Shipment, Shucking, and Sale—When Deemed Adulterated and Misbranded. (Reg. Bd. of H., March 4, 1926)

[Sanitary code.] **SEC. 164. Shellfish; sale regulated.**—No shellfish shall be brought into, or held, kept or offered for sale, anywhere in the city of New York without a permit therefore issued by the board of health or otherwise than in accordance with the terms of said permit and with the regulations of said board.

SEC. 171. Shellfish; sale of adulterated and misbranded prohibited.—No person shall bring into the city of New York, or have, sell, or offer for sale shellfish which are adulterated or misbranded.

Shellfish shall be deemed adulterated—

(1) If, after removal from the shell, they have been subjected to a process whereby their solid contents is decreased or their volume increased.

(2) If grown, floated, or cleansed in contaminated water.

(3) If they consist wholly or in part of diseased, decomposed, putrid, or rotten animal or vegetable substance.

(4) If they contain any antiseptic or preservative injurious to health.

(5) If they are floated in waters of lower salinity than the water in which they are grown.

(6) If any substance or substances has or have been mixed and packed with them so as to reduce or lower or injuriously affect their quality or strength.

(7) If after removal from the shell they have been cleansed in fresh water or water of a lower salinity than the water in which they are grown.

Shellfish shall be deemed misbranded—

(a) If they are labeled or branded so as to deceive or mislead the purchaser.

(b) If the container or its label shall bear any statement, design, or device regarding the shellfish or the other ingredients contained therein, which statement, design, or device shall be false or misleading in any particular.

[Regulations governing the sale of shellfish.] **REGULATION 1. Definitions.**—Unless otherwise expressly stated, wherever used in these regulations, the following terms shall be taken to mean and include:

1. "Shellfish": Oysters, clams, and mussels.

2. "Source of supply": The waters in which shellfish are grown.

3. "Place" or "point": The term "place" or "point" shall be taken to mean the exact location of the beds by number of plot, lease, or other distinguishing designation. It also means the location of storehouses or basins wherein the oysters in question are grown, stored, or treated.

4. "Pollution": The term "pollution" shall be taken to mean contamination by sewage or other substances.

REG. 2. Applications.—Applications for permits to sell shellfish in the city of New York shall be made to the bureau of food and drugs of the department of health upon official forms furnished for said purpose.

REG. 3. Procedure governing the approval of the source of supply.—Application for approval of source of supply shall be made to the bureau of food and drugs of the department of health upon official forms furnished for such purpose. The applicant shall specify the source of supply and the point where the shellfish are grown. The bureau of food and drugs of the department of health shall obtain from the local health authorities, the State authorities and the United States Public Health Service certificates certifying as to whether or not the source of supply

complies with the regulations governing shellfish within their respective jurisdiction. No permit for the sale of shellfish in the city of New York will be granted by the board of health unless the source of supply and the point where the shellfish are grown shall have been first approved by the said board.

REG. 4. *Exclusion of source of shellfish supply.*—Upon receipt of a written report of a duly authorized agent of the department of health, approved by the director of the bureau of food and drugs showing that the regulations of the board of health have not been complied with and that the shellfish from a particular source of supply have not been grown, planted, cultivated, stored, treated, transported, handled, kept, offered for sale, or sold, in accordance with these regulations, or such shellfish are a source of danger to the community, the commissioner of health may exclude such shellfish from the city of New York, and no person, shall bring into, sell, offer for sale, or distribute in said city any such shellfish after notice from the said commissioner of health. Upon the receipt of a written report of a duly authorized agent of the department of health, showing that the regulations of the board of health have been complied with, the commissioner of health may permit the bringing in, selling, offering for sale, or distributing in said city any such shellfish, excluded as aforesaid, if, in his opinion, the regulations have been complied with or the source of danger removed at any time after such exclusion. The director of the bureau of food and drugs shall report in detail to the board of health every such exclusion and readmission and the reason therefor.

REG. 5. *Bacterial standards.*—The result obtained from the bacterial examination of shellfish shall be interpreted in accordance with the numerical system established by the American Public Health Association's method of rating shellfish for *B. coli*, and where the total score of rating for *B. coli* equals 50 or more, such shellfish shall be deemed contaminated.

REG. 6. *Procedure governing enforcement of bacterial standards.*—The bacterial standards established for shellfish constitute one of the controlling factors in determining whether such shellfish are grown, planted, cultivated, stored, treated, transported, and delivered in accordance with these regulations, and the department of health of the city of New York will exercise the control furnished by such standards in the manner and in conformity with the restrictions herein set forth. Periodical samples for bacteriological examination shall be taken of shellfish. If, as a result of the bacteriological examination of such samples, it appears that the shellfish do not conform to the bacterial standards prescribed and the bacterial content is in excess of such standards, a written notification to such effect shall be sent to the persons holding a permit from the board of health. Thereafter, and within the time specified in said written notice, additional samples shall be taken by the department of health, and if the bacterial content of said shellfish is again found to be in excess of the prescribed bacterial standards and the cause thereof has not been removed, a second written notification shall be forwarded to such person, directing attention to such fact. Such written notification shall specify that further samples will be taken within a specified time, and if the bacterial content of such shellfish is again found to be in excess of the bacterial standards, the department of health will take immediate steps to exclude such shellfish from the city of New York. The provisions of these regulations shall not, however, be construed as limiting the power and authority of the department of health to exclude shellfish which have been found to have been suspected of containing pathogenic bacteria or which have been found to be adulterated or misbranded under the provisions of the Sanitary Code of the board of health of the department of health of the city of New York, or any State or United States statute.

REG. 7. *Shellfish from unapproved sources.*—No person shall bring into, offer for sale, or sell in the city of New York, shellfish for human food purposes from an unapproved source of supply.


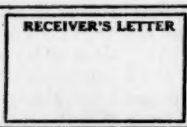
REG. 8. *Wholesale dealers in shellfish to keep record of receipts and disposition of shellfish.*—Every wholesale dealer in shellfish in the city of New York shall keep a record in his office in said city showing the source of supply and the name and address of the shipper or producer. Said record shall be kept on file in said office for a period of two months and shall be open to inspection by an authorized representative of the department of health at all times. No such wholesale dealer in shellfish shall receive any receptacle containing shellfish unless there shall be affixed thereto a label or tag upon which shall appear, clearly and legibly set forth, the source of supply, the permit number of the shipper or producer, and the date when caught.

REG. 9. No retail dealer in shellfish shall remove the tag affixed to the receptacle containing such shellfish until the contents thereof has [have] been sold or otherwise disposed of, and as soon as the shellfish contained in a receptacle have

been sold or before the said receptacle has been returned or otherwise disposed of or leaves the possession of the said retail dealer, the said tag shall be removed and kept on file at his place of business for a period of two months thereafter, and shall be open to inspection by a representative of the department of health.


REG. 10. *Labeling.*—The tag attached to receptacle containing shellfish shall be white or manila in color, and shall contain the permit number of the grower, producer, or dealer, the date when the shellfish was taken, and the location of the beds where the shellfish were grown or caught, all clearly and legibly set forth.

SHIPPER'S TAG

DEPT. OF HEALTH CITY OF NEW YORK 		THIS TAG TO REMAIN ON CONTAINERS UNTIL EMPTIED, THEN KEPT ON FILE FOR 60 DAYS. FAILURE TO COMPLY WILL SUBJECT TO PROSECUTION.	RECEIVER TO RETAIN THIS PART OF TAG 60 DAYS.
No.		No.	
RECEIVER'S LETTER 		To	
SHELLFISH DREDGED FROM		SHELLFISH DREDGED FROM	
BED NO.		BED NO.	
DATE		DATE	

DETACH HERE

SPLIT LOT TAG

DEPT. OF HEALTH CITY OF NEW YORK 	SPLIT LOT TAG SHELLFISH DREDGED FROM				THIS TAG TO REMAIN ON THIS CONTAINER UNTIL EMPTIED, THEN KEPT ON FILE FOR 60 DAYS.
No.	BED NO.	DATE	ORIGINAL TAG ON FILE AT PREMISES	NAME	

REG. 11. *Permits.*—Permits to sell shellfish granted by the board of health are issued subject to the following conditions:

- Permits may be revoked at the discretion of the board of health.
- Permits not transferable.*—A permit issued to a particular person may not be used by any other person.
- Permits shall remain in full force and effect until revoked by the board of health.
- The bringing into the city of New York for sale in said city of shellfish from unapproved or excluded sources of supply by a person to whom a permit is granted, may result in the permanent revocation of such permit.

REG. 12. Shellfish shall not be taken from the waters adjacent to the city of New York for food purposes, nor shall such shellfish be brought into the city of New York for food purposes, except in accordance with the terms of a written permit issued by the board of health of the city of New York and with the regulations of said board. Seed oysters shall not be brought into or removed from waters within the city of New York, except upon written permission of the department of health and subject to the rules and regulations thereof.

REG. 13. No shellfish which have been "floated," "drinked," or otherwise treated in fresh or brackish water so that there is a decrease in the solid contents or an increase in the volume or in the bacterial content of the shellfish, shall be brought into, held, kept, offered for sale or sold within the city of New York.

REG. 14. Shellfish may be brought into the city of New York in bulk, by boat or otherwise: *Provided*, That, before the cargo is discharged, the person or persons in charge of same shall submit a sworn statement upon official forms furnished by the department of health stating source of supply, date when taken or harvested, consignee and such information as is required in the official form. Satisfactory proof of the purity of the waters in which oysters or shellfish are grown shall be provided whenever required by the department.

REG. 15. Every boat engaged in the dredging or transportation of oysters or shellfish shall be equipped with proper toilet facilities, such facilities shall be so arranged as to prevent the discharge of fecal matter or other wastes into the waters, and it shall be the duty of the captain or other responsible person to prevent the discharge of filth into the waters in which shellfish are grown or treated.

REG. 16. Every person engaged in the growing or bringing of oysters or shellfish into the city of New York shall file with the department of health an application and sworn questionnaire, wherein all questions are answered in full and said record shall be corrected as often as necessary to insure a complete and correct record. Seed oysters may be brought into the city of New York in accordance with Regulation 12.

REG. 17. Receptacle or container in which shellfish is shipped or brought into, held, kept or offered for sale, or sold in the city of New York shall bear a tag upon which shall have clearly, legibly printed on the outer side thereof, shipper's number (as officially designated by the board of health) the point from which said shellfish is dredged, and date.

REG. 18. No person who is affected with any infectious or contagious disease shall work or be permitted to work in any place where shellfish is handled, packed, stored, offered for sale, or sold.

[Regulations governing shellfish shucking.] *Definitions*.—"Shucking": The term "shucking" shall be taken to mean the removal of shells from oysters or shellfish either in whole or in part.

"Blowing": The term "blowing" shall be taken to mean the removal of foreign substances from shucked oysters by means of a combination of air and water under pressure or any other mechanical apparatus.

REGULATION 1. Every building or room used for the purpose of shucking shall be constructed and equipped as hereinafter provided.

REG. 2. Rooms in which oysters are shucked and rooms in which shucked oysters are packed, stored, washed, or otherwise handled shall be provided with floors of tight smooth construction, so graded and drained as to discharge all liquid into properly trapped sewer or cesspool connected drains. Floors must be cleansed daily.

REG. 3. Walls and ceilings must be of a smooth, hard material and must be kept clean and sanitary and in good repair.

REG. 4. All benches upon which oysters are opened or shucked shall be of smooth, hard, impervious and nonabsorbent material which can be readily washed and shall be kept in a clean and sanitary condition at all times when in use. Said benches, if located or placed against a wall or walls, shall be provided with a back or backs of monolithic construction or with tight joints extending at least 18 inches above the benches, and the surface of all benches and backs shall be thoroughly cleansed and scalded with hot water or steamed after each day's work. The placing of shelves, boxes, lockers, hooks, nails, or other devices for storing clothes or other things above the working benches is prohibited.

REG. 5. Adequate facilities shall be provided to insure a sufficient supply of running hot and cold water at all times.

REG. 6. Adequate toilet and washroom shall be provided.

REG. 7. There shall be adequate light and ventilation in all rooms.

REG. 8. Screens shall be provided during the fly season.

REG. 9. Shells shall be cleansed of surplus matter by dousing with fresh water before the oysters are placed on the opener's bench, and no oysters with broken shells or a cluck oyster shall be used for shucking.

REG. 10. All utensils, buckets, skimmers, or other equipment in which shucked oysters are placed shall be constructed so that they may be readily cleansed. All utensils must be cleansed and sterilized at the close of each day's work.

REG. 11. The use of wooden paddles and buckets is prohibited.

REG. 12. Oysters that have been washed and prepared for packing and shipment shall not be touched by the hand.

REG. 13. Where blowing or other form of mechanical agitation is used to wash the oysters, such apparatus must be kept clean and sediment removed after each blowing, and a fresh supply of clean water used of not less than a salinity of 1.007 for each blow. The period of blowing shall not exceed three minutes. The water for washing shucked oysters shall be taken directly from the pipe and shall not be applied from tubs or other containers and shall not be refused for washing.

REG. 14. Shucked oysters for shipment must be placed in closed containers, thoroughly iced. They must be shipped the same day as opened, unless stored at 45° F. or below, or packed in shipping containers and thoroughly iced or otherwise effectively refrigerated. Oysters shall be iced in such a manner that neither the ice nor the water produced by its melting shall come in contact with the oysters. Returnable shipping containers must be thoroughly rinsed and properly drained before being returned to shipper and must be cleansed and sterilized just prior to refilling. The nonreturnable containers should be sterilized before filling. The use of shipping containers other than metal is prohibited.

REG. 15. Waste material must not be permitted to accumulate in the room where oysters are packed.

REG. 16. All shucking houses shall be provided with water, soap, individual towels. Employees shall thoroughly cleanse their hands before beginning work and after the use of the toilet. Signs to this effect shall be posted in toilet compartments and wash rooms.

REG. 17. Clean, washable outer clothing shall be worn by persons engaged in shucking oysters.

REG. 18. All employees must be provided with official health cards, nor shall any persons with infectious wounds on hand or arm be permitted to shuck oysters.

Soft Drinks—Sale. (Reg. Bd. of H., June 11, 1926)

[Sanitary code.] Sec. 165a. *Soft drinks; sale regulated; permit required.*—No person shall have, keep, sell, or offer for sale in any public place in the city of New York any soda water, lemonade, orangeade, orange drink, pineapple drink, or other soft drinks without a permit therefor issued by the board of health, or otherwise than in accordance with the terms of the said permit and the regulations of the said board.

Butter Drippings, etc.—Denaturing. (Reg. Bd. of H., June 25, 1926)

[Regulations governing the condemnation of food.] REG. 7. *Butter drippings; to be immediately denatured.*—Butter drippings or other waste products resulting from the manufacture or handling of butter shall be immediately denatured so as to prevent the use thereof for food.

RAHWAY, N. J.

Bread—Wrapping Required. (Reg. Bd. of H., April 17, 1925)

SECTION 1. That each and every loaf of bread must be completely and securely wrapped in clean paper at the bakery where same is baked before it is sold, offered for sale, or delivered in the city of Rahway, N. J.

SEC. 2. Any person, persons, or corporations violating section 1 of this ordinance upon conviction thereof shall pay a fine or penalty of \$10 for the first offense, and \$25 for each and every offense thereafter.

ST. PAUL, MINN.

Lunch Machines—License—Food Sold in, Required to be Fresh and Wholesome. (Ord. 6563, October 20, 1925)

SECTION 1. It shall be unlawful for any person to install, operate, or maintain so-called lunch machines, or machines which vend foodstuffs, within the city of St. Paul, without obtaining a license therefor, as hereinafter provided.

SEC. 2. Any person desiring a license to install such machines within the limits of the city of St. Paul shall file an application therefor with the license inspector;

which application shall state the number of machines that the applicant intends to install, together with the name and address of the applicant. Such application shall be referred by the license inspector to the chief health officer, and upon his approval of the same shall be presented to the city council. If the council grants the license applied for, the city clerk shall issue the same upon payment of the license fee hereinafter required.

SEC. 3. All applicants for a license hereunder, before the issuance of same, shall pay to the city clerk the sum of \$10 for each building wherein such machines are to be installed. Said license shall expire one year from the date of issuance.

SEC. 4. The food sold in such machines shall at all times be kept fresh and wholesome and fit for human consumption; and it shall be the duty of the chief health officer to make such inspection as he may deem necessary, to see that the food is fit for human consumption; and if the licensee fails to comply with the provisions of this section, the health officer shall report such fact to the council, and thereupon the license shall be revoked.

SEC. 5. Any person who shall violate any of the provisions hereof shall be guilty of a misdemeanor, and upon conviction thereof shall be punished by a fine not exceeding \$100 or by imprisonment for a period not exceeding 90 days.

WICHITA, KANS.

Food Establishments—Sanitary Requirements—Inspection—Protection and Sale of Food—Cleaning of Utensils—Use of Single-Service Utensils—Sale or Service of Milk in Original Container Required—Employees—Construction, Maintenance, and Labeling of Food-Vending Machines. Animals—Slaughter.
(Ord. 9166, April 12, 1926)

SECTION 1. That every place occupied or used for the preparation for sale, manufacture, packing, storage or distribution of any food or drink shall be properly lighted, drained, plumbed, ventilated, screened, and conducted with strict regard to the influence of such condition upon the health of operatives, employees, clerks, or other persons therein employed, and the purity and wholesomeness of the foods or drinks therein produced.

SEC. 2. The floors, side walls, ceiling, furniture, receptacles, implements, and machinery of every establishment or place where foods or drinks are manufactured, stored, sold, offered for sale, or distributed, and all cars, trucks, and vehicles used in the transportation of food products, shall at no time be kept in an unclean, unhealthful, and insanitary condition, and for the purpose of this regulation, unclean, unhealthful, and insanitary conditions shall be decreed to exist if foods or drinks in the process of manufacture, preparation, packing, storing, sale, distribution, or transportation are not securely protected from flies, dust, dirt, and, as far as may be necessary, by all reasonable means from all other foreign or injurious contamination; and if the refuse, dirt, and the waste products subject to decomposition and fermentation incident to the manufacture, preparation, packing, storing, selling, distributing, and transportation of food are not removed daily; and if all trucks, trays, boxes, baskets, buckets, and all knives, saws, cleavers, and other utensils and machinery used in moving, handling, cutting, chopping, mixing, canning, and all other processes are not thoroughly cleaned daily; and if the clothing or hands of operatives, employees, clerks, or other persons therein employed are unclean.

SEC. 3. Every person or corporation in charge of, or in control of, or in authority over any of the places mentioned by and described in these regulations shall be responsible for the condition thereof, and it shall be his or its duty to see that the provisions of this ordinance with reference to the condition, arrangement, and conduct of such places are carried out.

SEC. 4. The director of public welfare, or other proper authority, pursuant thereto shall have full power at any reasonable time to enter and inspect any building, room, cellar, or all utensils, fixtures, furniture, and machinery contained therein, or any of the places mentioned or described in these regulations.

SEC. 5. If, upon inspection of any food producing or distributing establishment, conveyance, employer, operative, employee, clerk, driver, or other person is found to be violating any of the regulations adopted, the inspector making the examination or inspection shall furnish notice of said violation to the offender and shall notify the director of public welfare of such action.

SEC. 6. All food-handling establishments must be well lighted and windows evenly distributed and windows made to operate for ventilation, and where impossible to provide windows, sufficient light must be provided, and a ventilating system installed.

SEC. 7. The floors of all food-handling establishments must be made smooth and tight of some non-absorbent material which can be flushed and washed clean with water.

SEC. 8. The side walls and ceilings of all food-handling establishments must be well plastered, wainscoted or sealed with metal or wood. If plastered, well lime washed or painted, and if wainscoted or sealed with metal or wood, well oil painted and kept washed clean with soap and water.

SEC. 9. The doors, windows, and other openings of every food-handling establishment during the fly season shall be fitted with self-closing screen doors and wire window screens of not less than 12-mesh wire gauze.

SEC. 10. All food-handling establishments where foods are prepared, served, or sold, which have any dishes, utensils, or machinery to be washed, must have running water and be connected with the sanitary sewer, and all sinks and dish or utensil washing tanks must be equipped with grease traps of at least 12 by 12 inches in size. All sinks and dishwashing tanks shall be constructed of some nonabsorbent material, or if constructed of wood same must be metal lined.

SEC. 11. All interior wood work, tables, shelves, show or display cases, windows, counters, blocks, utensils, and instruments used in handling, keeping, or displaying foods or drinks in places aforementioned, shall be kept in good repair, clean, sanitary, and free from dust, dirt, insects, flies, and other contaminating agencies.

SEC. 12. All refrigerators, ice boxes, and appurtenances thereto used in any manner in connection with any of the aforementioned activities or businesses, shall be kept in good repair, clean, and sanitary, and the apartment thereof used for the storage of ice shall be lined with some proper metallic substance so as to be water-tight, and the waste water therefrom, as well as from all display cases, windows, counters, tanks, vats, or other containers so used, shall be discharged into a sewer by adequate and proper connections, so devised and constructed as to perform such duty in a sanitary manner.

SEC. 13. No food-handling establishment shall be allowed to become infested with mice, rats, roaches, or other vermin.

SEC. 14. Garbage and waste materials shall not be allowed to become a nuisance about any place or establishment where any of the aforesaid businesses or activities are carried on, but shall be placed in suitable galvanized iron or other sanitary metal cans which are water-tight and which shall be kept covered with close-fitting lids.

SEC. 15. The yards of any of the aforementioned establishments must be kept clean and no rubbish, trash, or waste shall be allowed to accumulate. Slops and waste matter must not be thrown or emptied in the yard.

SEC. 16. All food and drink used for display purposes must be kept inclosed in tight cases or other containers, securely protected from contamination.

SEC. 17. All cook stoves, ovens, and ash pits shall be provided with ventilating hoods and pipes or other mechanical means for ventilating the room or place they occupy, and shall be kept clean and sanitary.

SEC. 18. All utensils, machines, receptacles, tools, and other articles shall be properly cleansed with hot water and sterilized; and if the same is not in such condition that it can be properly cleansed and sterilized, it shall not be so used. All dishes, cups, glasses, knives, forks, spoons, and other utensils or articles used in the service of food or drink to be consumed on the premises, after being so used, shall be first washed by being rinsed in cold, clean water, then thoroughly washed in hot water with soap or suitable cleansing powder, or shall be sterilized by being placed in an antiseptic solution approved by the director of public welfare, and then be rinsed in clean cold water: *Provided, however,* In lieu of the above requirements or when it is found impossible or inexpedient to sterilize, sterile dishes, cups, and spoons manufactured from paper, wood, or any other, suitable material and handled in a sanitary manner and used for one service only, will be permitted. The cleansing of any article as herein required in water which has become insanitary, is positively prohibited. All dishes, glasses, knives, forks, spoons, and other articles for service of food or drink to the public shall be protected from being handled by the public.

SEC. 19. All foods, such as confectionery, dates, figs, dried fruits, berries, butter, cheese, or any other food not ordinarily cooked, peeled, or washed before

being eaten, not protected by a fly-proof and dust-proof wrapper or container, shall be kept covered in cases of glass, metal, or wood, so as to prevent contamination by dust, flies, insects, dirt, or other contaminating materials.

SEC. 20. All bulk goods, such as sugar, lard, compound, tea, coffee, or other foods which are not eaten raw, but are used in the preparation of other foods, must be kept covered to protect the same from all contaminating influences.

SEC. 21. Fruits, vegetables, meats, and other food products shall not be displayed or exposed on the sidewalk or outside of places of business unless such foods are securely protected from flies, dust, dirt, and so far as the same is possible by the use of all reasonable means, from all other foreign and injurious contamination. In the enforcement of this rule the department of public welfare will hold that the foods enumerated in list No. 1 which follows, and other foods of the same general character, must be securely covered at all times by cases of glass, wood, or metal, and that the foods enumerated in list No. 2, and other of like nature, may be displayed outside the stores for sale without covering, if they are elevated at least 18 inches above the ground.

List No. 1.—Foods which must be covered—

Meats.	Berries.	Olives.
Oysters.	Plums.	Nuts. (shelled).
Sauerkraut.	Popcorn.	Asparagus.
Confectionery.	Pickles.	Currants.
Apples.	Green beans (pod).	Cherries.
Bakery products (when not wrapped).	Cauliflower.	Grapes.
Green onions.	Fish.	Bananas (with edible portion exposed).
Radishes.	Figs.	Melons (if cut).
Fruits (dried).	Dates.	Tomatoes.
	Peaches.	

List No. 2.—Foods which need not necessarily be covered [but] must be elevated at least 18 inches above the sidewalk—

Pineapples.	Nuts.	Lemons.
Sweet potatoes.	Cabbage.	Bananas.
Melons (uncut).	Green peas (in pod).	Beets.
Onions.	Cucumbers.	Carrots.
Grapefruit.	Potatoes.	Parsnips.
Turnips.	Oranges.	

SEC. 22. All canned or preserved goods, unless stored in glass or lacquered containers, must be removed from the original package when opened.

SEC. 23. Prepared foods shall not be stored in cellars unless such food is either in a glass or other container approved by the food inspector and such cellar is well lighted and ventilated and free from dampness and odors or other conditions which might contaminate or render such food unwholesome or unpalatable.

SEC. 24. All raw materials used in the preparation of [food?] and all foods and drink sold, or served, shall be healthy, fresh, sound, wholesome, and safe for human consumption.

SEC. 25. Foods individually served or dished to customers, or foods handled or partly consumed by customers, and then returned to the kitchen or serving room, shall not be served again.

SEC. 26. No milk shall be sold at retail or served in restaurants, hotels, or other places where food is prepared and sold except in the original container, filled and sealed by the dairy distributing same.

SEC. 27. No person shall sell or keep for sale any candy, beverages, or any prepared food, or prepare any food or drink intended for immediate consumption, from any street, alley, sidewalk, vehicle, open lot, or from an open window. The provisions of this ordinance do not apply to any food or drink that is effectively wrapped or bottled to prevent contamination by flies, dust, dirt, or other contamination, nor to ice cream served in clean cones.

SEC. 28. No sleeping or living quarters, toilets, ash pits, coal bins, or place where refuse is permitted to collect shall be within the rooms used for the cooking, preparation, storage, or serving of foods.

SEC. 29. Separate toilets and wash rooms, separated by a solid wall of not less than 4 inches in thickness shall be provided for male and female employees engaged at any place or establishment where foods and foodstuffs are prepared

or offered for sale; and no toilet shall be located in any room used for the preparation or serving of foods. The floor of toilets shall be of cement, tile, oiled wood, buck, or other nonabsorbent material, and shall be washed and scoured daily. Such toilets shall be ventilated by a window opening into the external air, or by proper and adequate ventilating shaft or a duct. Said light shaft or duct must be at least 2 square feet in size, and constructed so as to admit both light and air. Not less than one toilet shall be provided for each 18 employees or major fraction thereof. Lavatories shall be supplied with soap, running water, and clean towels, and shall be maintained in a sanitary condition. Employees are required before beginning work or after visiting toilet, to wash their hands and arms thoroughly in clean water.

Sec. 30. All plumbing in the aforementioned places must be kept well repaired and in a sanitary and working condition.

Sec. 31. In the preparation and serving of food, all towels or cloths used by waiters, chefs, and other employees shall be clean and sanitary, and such towels and cloths shall not be used for wiping and drying of dishes, glasses, and other utensils, or be permitted to come in contact with any foodstuff.

Sec. 32. The clothing worn by employees must be in a clean condition. Outer washable garments are preferred for use of employees.

Sec. 33. Smoking by proprietors, cooks, waiters, or other persons preparing, serving, or selling food is strictly forbidden.

Sec. 34. Cuspidors for the use of operatives, employees, or other persons shall be provided whenever necessary, and each cuspidor shall be thoroughly emptied and washed daily with a disinfectant solution, and about 5 ounces of such solution shall be left in each cuspidor while in use. No operative, employee, or other person shall expectorate on the floor or sidewalks of any building, room, basement, or cellar in any of the places or establishments aforementioned.

Sec. 35. No employer shall require, permit, or suffer any person to work, nor shall any person work in any building, room, basement, or cellar where any of the aforementioned businesses or activities are carried on, who is affected with any communicable disease or is a carrier of disease germs, except with the permission of the director of public welfare, and under such conditions as he may prescribe.

Sec. 36. Newspaper or any other paper used previously for any other purpose shall not be used to wrap, cover, or come in contact with any food of a kind not ordinarily cooked, peeled, or washed before being eaten.

Sec. 37. No food or drink shall be sold or offered for sale which is impure, diseased, decayed, unwholesome, or fraudulently adulterated with any substance of a poisonous character or any substance injurious to health, or is mouldy to an abnormal degree, or is in an abnormal state of fermentation, nor shall any meat that is unsound, blown, or unwholesome be sold or offered for sale. The food inspector is hereby authorized to condemn any article which is unfit for food according to the provisions of this regulation.

Sec. 38. No person shall slaughter any animal intended for human consumption which is in a feverish or diseased condition, nor shall any animal or part of animal that may be sickly, or which may have died from disease or accident, diseased or unwholesome, be offered for sale, nor shall any animal be slaughtered except in places and under the conditions which shall be prescribed or allowed by the board of health. No meat from an animal that has been slaughtered or cut up in a slaughterhouse or other place that is unclean or filthy, and no meat that has been transported under unclean or filthy conditions, shall be sold or offered for sale.

Sec. 39. All food or drink vending machines must be so constructed and maintained that no contamination of unwrapped food or drink served from such machine may occur either in vending or in storage. Machines must deliver the product directly into the hand of the purchaser, and not into any tray or other receptacle which may be exposed to dust or handling. A label showing the name and address of the owner of the machine must appear in a visible place on each machine. In the case of a machine not being properly labeled to show the owner's name and address, the renter of such machine will be held responsible for its condition.

Sec. 40. That any person, firm, or corporation who shall be convicted of the violation of the terms hereof shall be punished by a fine not exceeding \$25 for each and every such offense and each 24 hours' violation shall be deemed and punished as a separate offense.

GARBAGE, REFUSE, AND ASHES

ALLENTOWN, PA.

Garbage and Rubbish—Collection, Transportation, and Disposal—Receptacles for. (Ord. July 20, 1925)

SECTION 1. The word "garbage" when used in this ordinance is declared to include any offal or refuse of fish, fruit, vegetables, animal matter or any other organic substance subject to fermentation or decay.

SEC. 2. The word "rubbish" when used in this ordinance is declared to include paper, rags, street sweepings, dead animals, excelsior, straw, boxes, old clothes, mattresses, old shoes, leather scrap, oil cloth, carpet, Christmas trees, prunings from vines, lawn trimmings, grass, and any and all other inflammable waste materials which result from the ordinary conduct of housekeeping.

SEC. 3. For the protection of the inhabitants of the city of Allentown, all garbage and rubbish must be collected and deposited in the incinerator, maintained by the city.

SEC. 4. The board of health shall divide the city into districts and prescribe the days for the collection and removal of garbage and rubbish from said districts.

SEC. 5. Garbage and rubbish shall be removed during the months of May, June, July, August, September, and October, between the hours of 6 a. m. and 5 p. m., and during the months of November, December, January, February, March, and April, between the hours of 7 a. m. and 5 p. m., except on Hamilton Street between Front and Twelfth Streets where garbage and rubbish must be removed daily between the hours of 6 a. m. and 10 a. m.

SEC. 6. During the months of October, November, December, January, February, March, April, and May all garbage and rubbish shall be removed twice each week from each designated district, and during the months of June, July, August, and September, all garbage and rubbish shall be removed three times each week from each designated district, except on Hamilton Street between Front and Twelfth Streets, the garbage and rubbish must be removed daily.

SEC. 7. The garbage and rubbish contractor or contractors shall call regularly at all dwellings, whether the means of access be through alleys, courts, front streets, or public highways and remove promptly and in as clean a manner as possible all garbage and rubbish and return the garbage and rubbish receptacle or receptacles to the premises from which they have been removed. They shall also collect and remove all garbage and rubbish which by accident or otherwise, may have been put or fallen on the sidewalks, streets, courts, alleys, or highways.

SEC. 8. All householders shall drain the garbage of all liquids and shall wrap each day's garbage in paper, which shall then be deposited in a suitable receptacle. Rubbish must also be deposited in suitable receptacles, and the contents securely tied, wrapped or bundled, so as to prevent any of the material from being scattered about.

SEC. 9. All garbage and rubbish receptacles must be of good metal construction, with tightly fitting covers, and have a capacity of not more than 2 bushels.

SEC. 10. All garbage and rubbish receptacles shall be placed at the curb or street line, in the front or rear of the respective home of the householder, prior to the time set for the collection, and must be removed from the highway immediately following its collection.

SEC. 11. The accumulation of garbage and rubbish at restaurants, hotels, cafés, clubs, wholesale and retail fruit and produce dealers, and poultry houses, shall be removed daily, at the expense of the producer.

SEC. 12. Persons or firms desiring to remove garbage from the city, for hog feeding or for fertilizing purposes, must have written permission from the board of health, so to do. Wagons, carts, and any vehicle used in transporting garbage

outside the city limits must be of metal construction, or metal lined, or the garbage may be placed in metal containers or receptacles, with tightly fitting covers. All wagons, carts and other vehicles, shall be so loaded and driven that none of the contents shall fall or spill therefrom, and shall be securely covered on the top.

Sec. 13. Tree trimmings and limbs of trees, when the quantity is too large to be placed in receptacles, shall be cut in lengths, not to exceed 4 feet, tied in bundles, and delivered to the incinerator, at the expense of the person or persons responsible.

Sec. 14. All carts, wagons, and other vehicles used in the collection and transporting of garbage and rubbish, within the city limits, shall have permanently painted in white letters, upon both sides thereof, the words "Garbage and rubbish," and shall be numbered in regular order, beginning with No. 1 which name and number shall be plainly and legibly displayed, and shall always be kept clean and maintained so as not to create a public nuisance or be in any way a menace to the public health and shall at all times be subject to a rigid inspection by any police officer or any authorized agent of the board of health.

Sec. 15. All carts, wagons, and other vehicles used in the collection and transporting of garbage and rubbish within the city limits, or engaged in the removal of garbage and rubbish from the city, shall be subject to the approval of the board of health.

Sec. 16. The garbage and rubbish contractor or contractors, or any person or persons engaged in the collection and removal of garbage and rubbish, and all householders, firms, corporations, copartnerships, fruit and produce dealers, poultry dealers, and any and all persons who may or do produce garbage and rubbish, shall at all times be subject to any and all legislation, which may from time to time be enacted by the board of health, for the betterment of the service of collection and removal of garbage and rubbish, or for the convenience of the public.

Sec. 17. That any person violating any of the provisions of this Ordinance shall for each and every offense, upon conviction before the mayor, committing magistrate, or any alderman of the city of Allentown, Pa., pay a fine of not less than \$5 nor more than \$100, and in default thereof shall be imprisoned in the Lehigh County prison for a period not exceeding 10 days.

CINCINNATI, OHIO

Garbage and Refuse—Receptacles for. (Ord. May 3, 1923)

SECTION 1. That section 991 of the Code of Ordinances of the city of Cincinnati be and the same is hereby amended to read as follows:

Sec. 991. The occupant or occupants of every dwelling house or other building not a tenement house, lodging house, or hotel in the city of Cincinnati shall provide a water-tight metallic receptacle equipped with a close-fitting metallic cover of a convenient size to be handled by the garbage collector, in which such occupant or occupants shall place or deposit or cause to be placed or deposited all offal, garbage, and refuse animal and vegetable matter.

Such occupant or occupants shall keep and maintain such covered metallic receptacle in such manner that it shall not become or constitute a nuisance to or in the neighborhood of such occupant or occupants, and on the day that garbage is collected in such neighborhood such occupant or occupants shall place such covered metallic receptacle in the alley in the rear of the premises of the occupant or occupants, or upon the curb of the street such premises bound and abut, or at such other place most accessible to the person collecting such offal, garbage, and refuse animal and vegetable matter, and it shall be unlawful to place or deposit anything other than offal, garbage, and refuse animal and vegetable matter in such metallic receptacle for collection by the person collecting the same.

Sec. 2. That section 991 of the Code of Ordinances as originally enacted be, and the same is hereby, repealed.

KANSAS CITY, MO.

Garbage—Permit for Collection, Removal, and Transportation. (Ord. 51072, August 19, 1925)

SECTION 1. No person, firm, or corporation shall collect or remove any garbage or haul the same, over the streets, alleys, boulevards, or other public places in the city, without first having obtained a permit therefor from the hospital and health board, and attaching in a conspicuous place upon the vehicle in which

said garbage is hauled, the number of said permit, in figures which are not less than 3 inches high.

SEC. 2. Any person, firm, or corporation desiring to obtain any such permit shall file written application therefor with the hospital and health board, which said applicant shall plainly state the premises and buildings from which garbage is proposed to be collected. Such applicant shall also furnish the hospital and health board with any other information deemed necessary by the hospital and health board. The hospital and health board may grant such permit or may refuse the same and the hospital and health board shall have the power at its pleasure to revoke, with or without notice, any such permit which may be granted.

SEC. 3. Any such permit shall specify the premises from which garbage may be collected and the holder of such permit shall not collect garbage or haul the same from any premises other than as designated in the permit. The frequency of such garbage collections, the hours for collection service, the rules and regulations relating to handling receptacles and to the maintenance and cleaning of garbage equipment, the cleaning of collection units, and the maintenance of equipment shall all be the same as specified in sections 7, 8, 9, 13, 14, and 17 of a certain contract and specifications for the collection and disposal of garbage, executed on the 6th day of July, 1925, and confirmed by ordinance No. 50719, approved July 7, 1925.

SEC. 4. No such permit shall be issued by the hospital and health board, in conflict with any of the terms and provisions of said contract executed July 6, 1925, including the specifications therein contained.

SEC. 5. Any and all permits which may have been heretofore issued for the collection, removal, or hauling of garbage are hereby revoked.

SEC. 6. That ordinance No. 9757, entitled "An ordinance forbidding the collection and hauling of garbage by anyone not having a permit therefor and not hauling the same in sanitary steel tanks" approved September 20, 1911, be and the same is hereby repealed.

SEC. 7. Any person, firm, or corporation who shall violate any provisions of this ordinance shall, upon conviction, be fined not less than \$25 nor more than \$500, and each day's violation thereof shall be a separate offense.

MIAMI, FLA.

Garbage and Trash—Receptacles for—Collection. (Ord. 636, April 5, 1926)

SECTION 1. That for the purposes of this ordinance the word "garbage" is hereby defined to mean every refuse accumulation of animal, fruit, or vegetable matter that attends the preparation, use, cooking, and dealing in, or storage of, meats, fish, fowl, fruits, or vegetables.

SEC. 2. It shall be unlawful for any person, firm, or corporation to remove or convey, or to cause or permit to be removed or conveyed any garbage upon or along any public street, alley, or other public place, in the city of Miami; except in cases where a special permit to remove, or cause to have removed, garbage, shall be granted to any person, firm or corporation by the department of public welfare; and such permit may be revoked by said department of public welfare at any time for cause.

SEC. 3. All garbage in the city of Miami shall first be thoroughly drained of all liquid matter and then tightly wrapped in paper and deposited in the covered metal garbage cans furnished by the city of Miami. And no other material, of whatsoever character other than the foregoing, shall be placed in the aforesaid metal garbage cans. These cans shall be kept tightly covered at all times, except when it is necessary to lift the covers to deposit garbage therein.

SEC. 4. All other waste, trash, or rubbish accumulating on the premises of any department store, shop, restaurant, hotel, boarding house, or other like commercial establishment shall be deposited in a regulation receptacle which will be provided by the city of Miami upon the payment to the department of finance [of] the sum of \$6; households shall provide metal-covered barrels for these accumulations of waste, trash, rubbish, and tin cans.

SEC. 5. Both metal garbage cans and receptacles for waste or rubbish shall be kept in locations easily accessible to the city scavenger. And the department of public welfare shall have the authority to designate the locations of such cans and receptacles, if in their judgment this becomes necessary.

SEC. 6. Each household shall be entitled to have one weekly free service for the removal of garbage and trash accumulations by the city of Miami upon pay-

ment to the department of finance [of] the sum of \$3 payable annually for the rental of each garbage can necessary to properly take care of the garbage accumulations for an individual household.

SEC. 7. Department stores, shops, restaurants, hotels, and boarding houses shall be entitled to one removal service each week upon the payment of \$4 for each garbage receptacle in their possession without cost. But where large accumulations of garbage and trash require more frequent collections, such extra service shall be given only upon the payment of a charge of 10 cents for each can of garbage, and 10 cents for each container of trash.

SEC. 8. All ordinances, or parts of ordinances, in conflict with any of the provisions hereinabove stated, are hereby repealed.

SEC. 9. Any person violating any of the provisions of this ordinance shall for every such violation, upon conviction thereof, be subject to a fine of not less than \$10 nor more than \$50, or to imprisonment for not less than 5 days or more than 15 days.

PROVIDENCE, R. I.

Certain Waste Matter—Depositing on and Removal from Land Within City. (Ord. June 9, 1923)

SECTION 1. Section 3 of chapter 29 of the Revised Ordinances of 1914 entitled "Health" is hereby amended so as to read as follows:

SEC. 3. No person shall place or deposit, or cause or permit to be placed or deposited, upon the surface of any land anywhere within the limits of the city, any decomposing or decomposable animal or vegetable matter or any other waste matter or substance of a sort that may injure or tend to injure health, except by permission of the superintendent of health. And every owner, lessee, or occupant of such land, or any person having general charge of the same, or any person hereafter placing or depositing, or causing or permitting to be placed or deposited, any such matter or substance as aforesaid, shall, if the superintendent of health shall so request in writing, remove said matter or substance from said land within three days after receiving such request. And every day in excess of three that any person shall suffer or permit any such matter or substance to remain upon said land after receipt of such a request from the superintendent of health shall be deemed and regarded as a separate offense under this section.

SEC. 2. Section 20 of chapter 29 of said Revised Ordinances of 1914 is hereby amended so as to read as follows:

SEC. 20. Any person who shall violate any provision of this chapter shall be fined not exceeding \$20 for each offense.

SACRAMENTO, CALIF.

Garbage, Rubbish, and Waste Matter—Receptacles for—Keeping, Collection, Transportation, and Disposal. (Ord. 146, Fourth Series, January 24, 1924)

SECTION 1. Garbage, as the said word is made use of in this ordinance, consists of dead animals, of not more than 10 pounds weight each, and of every accumulation of animal, vegetable, and other matter that attend[s] the preparation, consumption, decay or dealing in, or storage of, meats, fish, fowls, birds, fruits, or vegetables. The term "garbage" does not include dish water or waste water.

Rubbish, as the word is made use of in this ordinance, consists of wood, leaves, dead trees or the branches thereof, chips, shavings, woodenware, dodgers, printed matter, paper, pasteboard, grass, rags, straw, boots, shoes, hats, and all other combustible matter not included in this ordinance under the term "garbage."

Waste matter, as the word is made use of in this ordinance, consists of natural soil, earth, sand, clay, gravel, loam, manure, stones, bricks, brick-bats, plaster, Portland cement, crockery, queensware, glass, glassware, ashes, cinders, shells, metals, and all other noncombustible materials.

SEC. 2. It shall be the duty of every tenant, lessee, or occupant of any private dwelling house and of the keeper of every hotel, restaurant, eating house, boarding house, or other building where meals are furnished and of the owners of every furnished flat or apartment house, and of every other person having garbage, to provide without expense to the city of Sacramento, and at all times to keep within said building or on the lot on which said building is situated, suitable and sufficient water-tight cans or receptacles with suitable bales or handles, and each having a tight-fitting cover, for receiving and holding without leakage,

or escape of odors, and without being filled to within 4 inches of the top, all the garbage which would ordinarily accumulate on said premises in one week's time; and all such cans shall be placed at least 4 inches above the ground, and shall be so placed as to be readily accessible for removing and emptying the material therefrom by the collectors, and where they will not be a public nuisance or in any degree offensive. Such garbage cans or receptacles must be emptied by the collectors at least once each week. Cans or receptacles for garbage from private dwelling houses, from each flat, and from each apartment house shall each have a capacity of not less than 10 gallons, nor more than 30 gallons, and cans or receptacles for garbage at all other places shall each have a capacity of not less than 10 gallons, nor more than 60 gallons. No can or receptacle for receiving garbage, rubbish, or waste matter shall be placed on or in any street, alley, sidewalk, footpath, or any public place whatsoever, except in accordance with rules and regulations established under this ordinance for the collection of the same. It shall be unlawful to keep, place, or deposit garbage, rubbish, or waste matter on any private grounds or premises whatsoever, except in cans or receptacles as designated in this ordinance.

SEC. 3. It shall be unlawful for any person in the city of Sacramento to throw or deposit any garbage, rubbish, or waste matter, or to cause the same to be thrown or deposited, upon any street, alley, gutter, park, or other public place, or to throw or deposit the same in or upon any vacant lot, or back yard, or to store or keep the same otherwise than in cans or receptacles, as required by sections 2 and 4 of this ordinance; and it shall be unlawful to have, store, deposit or keep garbage where rats can have access thereto, or feed thereon. Each day's violation of this section shall be treated and considered and the same shall be a separate and distinct offense.

SEC. 4. It shall be the duty of every tenant, lessee, and occupant of every private dwelling house and of the keeper of every hotel, restaurant, eating house, boarding house, apartment house, or other building where rubbish will accumulate, to provide boxes, barrels, or other proper receptacles to be kept on said premises sufficient to hold the rubbish which would ordinarily accumulate on such premises in one week's time, and all rubbish accumulating on such premises shall be placed in such boxes, barrels, or other receptacles. Said boxes, barrels, or receptacles shall be so placed as to be readily accessible to the collectors for the removal of rubbish therefrom. No one of said boxes, barrels, or receptacles shall have a capacity exceeding 100 gallons. The health officer, with the approval of the city manager, shall be the exclusive judge of the sufficiency of such boxes, barrels, or receptacles.

SEC. 5. It shall be unlawful to deposit any garbage or rubbish within the city limits or within 400 yards thereof, except at the garbage crematory or other place designated by the health officer and approved by the city manager for the purposes of destruction. Waste matter, as defined by this ordinance, if not removed beyond the city limits, may be made use of upon receiving written permission from the health officer with approval by the city manager for filling in on low lots within the city limits.

SEC. 6. It shall be unlawful for any person, firm, or corporation, other than the Sacramento city garbage collectors, or such other collectors as may be designated by the city of Sacramento, under contract therefor, or its, or his agents or employees, to collect, dispose of, transport, carry, or convey through the streets, alleys, or public thoroughfares, of the city of Sacramento, any garbage, rubbish, or other matter offensive to the sight, or to collect or dispose of the same, except waste paper and waste matter, as the word is used in this ordinance.

Such employees of the city of Sacramento, or its agents duly authorized so to do, shall collect and remove such garbage, rubbish, or offensive matter, between the hours of 9 o'clock p. m. of any one day and 12 o'clock noon of the next succeeding day, and then only in water-tight cans or in carts or wagons having water-tight beds or boxes with proper covers, so that the garbage, rubbish, or other matter shall not be offensive; the garbage and rubbish shall be so loaded that none of it shall fall, drip, or spill to the ground; and every such cart or wagon shall be kept clean and well painted on the outside and said carts or wagons shall be numbered with the number of each painted on the outside thereof, so as to be plainly seen. Each garbage collector shall, when at work, wear a numbered badge in plain sight upon which shall be the words, "Sacramento garbage collector."

SEC. 7. It shall be unlawful for any person, firm, or corporation to drive, or to cause to be driven upon or along any street, alley, highway, place, court, or other public place within the limits of the city, any wagon, cart, or other vehicle loaded with rubbish or waste matter, as said terms are defined by this ordinance, unless

such wagon, cart, or other vehicle be provided with side and end boards, not less than 20 inches high, and be so loaded that such rubbish or waste matter will not spill out upon the streets, alleys, highways, and other public places of the city.

SEC. 8. It shall be unlawful for any person to burn, or to cause to be burned, in or on any street, alley, highway, public or private lot or park, or in any place within the limits of the city of Sacramento, any garbage, rubbish, or waste matter, except as provided in section 5 of this ordinance: *Provided, however,* That the provisions of this section shall not apply to the burning of rubbish outside of the fire limits of the city of Sacramento, between the hours of 9 o'clock in the morning and 2 o'clock in the afternoon of any day; but in no event shall rubbish be burned on any bitumen or asphalt street, alley or highway, or in any street or alley or highway which has been macadamized or oiled.

SEC. 9. It shall be unlawful for any person to throw or deposit, or to cause to be thrown or deposited, any rubbish or waste matter, as said terms are defined by this ordinance (except bricks, brick-bats, cement, plaster, stones, and gravel, and these only under a building permit) in or upon any vacant lot or in any back yard, or on or upon any street, alley, gutter, highway, park, or other public place in the city of Sacramento; or to deposit or place or keep any rubbish or waste matter except in the manner prescribed in section 4 of this ordinance.

SEC. 10. It shall be unlawful for any person to throw, deposit, or distribute, or to cause to be thrown, deposited, or distributed, in or on any street, alley, gutter, highway, park, vacant lot, or other place in the city of Sacramento, or in any vehicle parked or standing upon any such place, any dodgers or other similarly written or printed matter.

SEC. 11. It shall be the duty of the garbage department of the city of Sacramento, which department is hereby created, under the direction of the city manager, to gather, collect, and dispose of by dumping, burning, distribution, or sale, all garbage, rubbish, and waste matter except as hereinafter provided within said city. The city council may authorize and empower the city manager to dispose of the same in such manner as it may deem proper for the best interests of said city and in compliance with the rules and regulations of the health department of said city. It shall be the duty of the garbage department to collect all garbage in said city, at least once each week and at such other times as the necessities of the particular case require.

SEC. 12. For the purpose of said collection the garbage department may divide the city into as many districts as may be deemed necessary for the convenient collection of garbage, rubbish, and waste matter, and may fix a day or days on which the same shall be collected in said districts.

SEC. 13. The city manager is hereby authorized and directed to employ all foremen, laborers, clerks, route men and collectors necessary for the collection and disposal of garbage, rubbish, or waste matter by the city and is hereby further authorized and empowered to purchase or lease, or to recommend the purchase or leasing, under the provisions of the charter of the city of Sacramento, of all necessary horses, wagons, trucks, trailers, or other vehicles, supplies, or other equipment, land and real or personal property, necessary for carrying into effect the provisions of this ordinance relative to the collection and disposal of garbage, rubbish, and waste matter by the garbage department of the city.

SEC. 14. Any person from whom garbage, rubbish, and waste matter is collected under the provisions of this ordinance, shall pay the city of Sacramento, through the city controller, the following fees for said service:

1. For the collection of garbage, rubbish and waste matter, once each week, where the amount collected from the person paying the fee does not exceed 20 gallons at one collection, the sum of 50 cents per month; where the amount of garbage exceeds 20 gallons per collection, there shall be an additional charge of 25 cents per month for each additional 20 gallons or fraction thereof, and for more than one collection per week the charge shall be 25 cents per month for each additional weekly collection.

Where rubbish or waste matter only is collected and not in conjunction with a regular collection, the charge shall be at the rate of \$3 per hour, prorated in accordance to the time consumed, which is to include the removing, loading it in wagon, and hauling the same.

The above amounts for regular collections shall be payable in advance, or at the end of each month, at the option of the city manager; payment for special clean-up jobs shall be made at the time the services are performed.

SEC. 15. It shall be unlawful for any person or persons, other than the duly authorized collectors of the city of Sacramento, as prescribed in this ordinance, to collect garbage or rubbish, or to interfere in any manner with any receptacle

containing garbage or rubbish or the contents thereof, or to remove any such receptacle from the place where the same are [is] placed by the owner or lessees thereof, or to remove the contents of such receptacle.

Provided, That any person, firm, or corporation owning any garbage or rubbish, as the same is defined in this ordinance, may transport the same on the streets and alleys of the city of Sacramento, only in accordance with the rules and regulations of the health department, and the provisions of this ordinance, on a permit granted by the city manager.

SEC. 16. Ordinance No. 17, fourth series, passed September 22, 1921; Ordinance No. 50, fourth series, passed January 12, 1922; ordinance No. 57, fourth series, passed February 14, 1922, and ordinance No. 82, fourth series, passed June 29, 1922, are hereby repealed.

SPOKANE, WASH.

Garbage—Permit for Collection and Transportation. (Ord. C3727, December 28, 1925)

SECTION 1. It shall be unlawful to deposit, throw, or place any garbage or other refuse food matter in a lane, alley, street, park, or other public place; or to deposit, throw, or place any garbage upon any private property, regardless of ownership, unless such garbage be inclosed in vessels or tanks of the type required by ordinance No. C1848, which vessels or tanks shall be perfectly watertight and have tightly fitting covers, and such covers shall not be removed except when necessary for the deposit or removal of garbage. No person, except for purposes of collection under permit or in the employ of the crematory division, shall in any manner interfere with said vessels or tanks or with the contents thereof.

SEC. 2. *Definitions—Restrictions—Garbage cans.*—The word "garbage" as used in this ordinance shall be held to mean and include every refuse accumulation of animal, fruit or vegetable matter, liquid or otherwise, not putrid or decaying, that attends the preparation, use, cooking, dealing in, or storing of meat, fish, fowl, fruit, vegetables, except coffee grounds or tea leaves. It shall be unlawful to place in any vessel or tank devoted to, or used for, the keeping or collection of garbage, any coffee grounds, tea leaves, paper, ashes, cans, tins, rubbish, soap, lye, chinaware, glass, soil, or other substance except garbage.

SEC. 3. *Permits, form of permit—Regulations by health officer.*—The health officer shall be, and hereby is, authorized to grant permits to suitable persons for the collection and removal of garbage from eating places as defined in ordinance No. C2579, and such other places of business as he may determine, subject to such rules and regulations as the health officer may determine: *Provided*: That after June 1, 1926, such permits shall be granted only to citizens of the United States over the age of 21 years, or to persons over such age who have theretofore declared their intention to become such citizen; nor shall any permit be granted after such date to any corporation any part of the stock of which is owned by persons not citizens of the United States or who have not declared their intention to become such citizens. The health officer shall be, and he is hereby, authorized, from time to time, to make in writing such rules and regulations governing the keeping, collection, and disposal of garbage as may be necessary for public health and sanitation, and such rules and regulations when issued shall be published in the Official Gazette.

SEC. 4. *Collecting or hauling without permit prohibited.*—No person, firm, or corporation shall collect or convey through the streets of the city any garbage unless such person, firm, or corporation shall have been granted such permit, and unless said permit be still in force and valid, subsisting and unrevoked, or such person, firm, or corporation is employed by the crematory division of the city, and only at such periods of the day as the health officer may require.

SEC. 5. *Application for—Issuance of—Term of permit—Fee.*—Any person, firm, or corporation desiring to haul and use such garbage for feed shall file a written application with the health officer for a permit so to do, upon a printed form to be supplied by him. The application shall set forth such information as he may require and shall include a consent by the applicant for the inspection at any time of the premises to which the garbage is taken and used, and that all sanitary regulations of the health officer with respect to the conduct and care of the premises shall be observed by the applicant.

Upon the approval of the application by the health officer and the payment of the fee herein prescribed to the city treasurer, whose receipt for the same

shall be filed with the health officer, the permit shall be issued to the applicant. The fee for such permit shall be \$10 for each vehicle used in the collection of garbage at the time of issue, and all permits issued under authority of this ordinance shall expire on the 31st day of December of the year in which they are granted, unless sooner revoked by the health officer as authorized by this ordinance: *Provided*, That any permit issued hereunder prior to the 1st day of June, 1926, to any person not a citizen of the United States, or who shall not have declared his intention to become such citizen, or to any corporation all of the stock of which is not owned by citizens of the United States or by persons who have declared their intention to become such citizens, shall terminate on the 31st day of May, 1926, unless sooner revoked.

Sec. 6. *Revocation of permit.*—Any permit granted under the provisions of this ordinance may be revoked by the health officer whenever it shall be made to appear to him that the holder of such permit has violated any of the provisions of this ordinance or of any regulation made by authority thereof, or has violated any other ordinance of the city of Spokane pertaining to handling, hauling, or use of garbage. Upon the revocation of any such permit by the health officer he shall immediately serve notice thereof in writing upon the permittee in person or by registered mail. If personal service is made, the order of revocation shall become effective immediately, but if made by registered mail it shall become effective 24 hours after midnight of the day of mailing the order.

Sec. 7. *Penalty.*—Any person, firm, or corporation violating any of the terms or conditions of this ordinance, or who shall violate or fail, neglect, or refuse to comply with any regulation prescribed or order made by the health officer, as in this ordinance provided, shall be deemed guilty of a misdemeanor, and upon conviction thereof shall be fined in any sum not exceeding \$100, or be imprisoned in the city jail for a term not exceeding 30 days, or be punished by both such fine and imprisonment.

TACOMA, WASH.

Garbage, Refuse, and Ashes—Contract for Collection, Transportation, and Disposal. Removal of Dead Animals and Cleaning of Privies and Cesspools—Contract for. (Ord. 7888, May 23, 1923)

SECTION 1. For the purpose of this ordinance the term "garbage" in addition to its ordinary meaning shall be construed to include ashes and all other refuse material which daily accumulates in and about human habitations and places of business.

Sec. 2. The commissioner of public affairs, health and sanitation is hereby authorized to call for proposals or bids in the manner provided by section 59 of the city charter, and let an exclusive contract for a period of five years to the person, firm, or corporation submitting the best proposal or bid, to engage in the business of collecting, hauling, and disposing of garbage in the city of Tacoma.

The contractor to whom such contract is awarded shall agree and bind himself to furnish and at all times maintain a sufficient number of vehicles properly manned and equipped to remove the garbage of all persons desiring his service, located in the residence section of the city, at least once each week, and to remove the garbage of all such persons located in such sections of the city as shall be designated by the health officer as business sections, at least once every day, or in either of said districts as often as required by the health officer. Collections in the business sections to be made before the hour of 10 o'clock a. m.

He shall agree to convey the garbage collected to such dumps as may be designated by the proper officers of the city and in the collection and disposal thereof to comply with any and all ordinances of the city and the regulations of the health officer relative thereto. It being understood, however, that the city shall provide and maintain at all times sufficient roadways to and from such dumps.

The contractor shall further agree to keep himself properly equipped for the removal of dead animals and the cleaning of cesspools and vaults, and that he will promptly attend to all of such business offered to him for a reasonable charge to be paid by the person employing him.

In the bid or proposal submitted the bidder shall set forth a schedule of rates contained in the proposal of the rates or charges which he proposes to make for the collection of garbage, both in the business and residence districts, and any contract which may be entered into shall set forth the schedule of rates contained in the proposal of the person to whom the contract is awarded and shall provide

that no charge in excess of the rates contained in such schedule shall be made by him.

All proposals shall be accompanied by a certified check in the sum of \$500, payable to the order of the treasurer of the city of Tacoma, and if any bidder shall fail or refuse to enter into a contract as herein provided, after the same has been awarded to him, such check and the amount thereof shall be forfeited to the city and shall be collected and paid into the general fund.

SEC. 3. At the time of the execution of the contract the commissioner shall require the person to whom the same is awarded to execute and deliver to the city a surety bond in the sum of \$10,000, conditioned for the faithful performance of said agreement by said contractor.

SEC. 4. From and after the time such contract is entered into it shall be unlawful for any person, firm, or corporation other than the contractor above mentioned, to engage in the business of collecting, hauling, or disposing of garbage in the city of Tacoma.

Provided, however, This ordinance is not intended to prohibit persons from transporting their own garbage or garbage which may have been purchased by them for their own use, when the same is done in the manner and at the times required by the ordinances of the city.

SEC. 5. Any person, firm, or corporation violating any of the provisions of this ordinance shall, upon conviction thereof, be fined in any sum not exceeding \$100, or imprisoned in the city jail for a period not exceeding 30 days.

UNION CITY, N. J.

Bones, Fat, Refuse, and Offensive Material—Collection and Transportation. (Reg. Bd. of H., December 23, 1925)

SECTION 1. No person, firm, or corporation shall collect in the city or transport through the streets or public places of the city any bones, fat, refuse, or offensive material without permit granting permission so to do first issued by the board of health of the city.

SEC. 2. No permit shall be issued by the board of health under this ordinance for any of the purposes mentioned in the preceding section except upon the payment of a fee of \$10 and then only for such specific purpose or purposes as may be approved by the board of health, such purpose or purposes to be stated in the permit. Any such permit so issued shall continue in force only for and during the calendar year in which issued, and the fee of \$10 shall be paid whether such permit be issued for a full calendar year or for any part of the calendar year.

SEC. 3. Any vehicle or conveyance used in the transportation of any of the materials mentioned in section 1 of this ordinance shall be so constructed and shall be kept in such condition that no leakage of any liquid or other material shall be possible therefrom, and any such vehicle or conveyance, so used, shall at all times be kept in a clean and sanitary condition. Any vehicle, so used, shall further be used only when marked with the letters and words "Board of health, Union City. Permit No. —," which letters and words shall be painted on the right and left sides of each vehicle or conveyance thus used, and which letters and words shall conclude with the actual permit number issued and under which such vehicle or conveyance is operated. The painting thus mentioned and thus to be placed upon said vehicles or conveyances shall be at least 2 inches tall.

SEC. 4. Any person or persons, company, partnership, or corporation violating any provision of this ordinance shall, upon conviction thereof, pay a penalty of not less than \$2 and not more than \$100, the amount of such penalty between the maximum and minimum, thus to be paid, to be fixed in the discretion of the court or magistrate before whom the complaint may be made, and any person thus adjudged guilty and sentenced to pay a penalty, who may refuse or neglect to pay the amount of such judgment or penalty and all costs and charges incident thereto, may be by the court or magistrate before whom the complaint has been heard committed to the county jail for any period not exceeding 90 days and the court or magistrate before whom the complaint may be thus made, in case the defendant shall have been twice convicted, within the space of six months, of the violation of this ordinance, on due proof of such fact being made, may, in addition to the payment of the appropriate penalty, cause said defendant to be imprisoned in the county jail or county workhouse, with or without hard labor, for any number of days, not exceeding one for each dollar of penalty imposed.

WASHINGTON, PA.

Garbage and Rubbish—Receptacles for—Collection, Transportation, and Disposal. (Ord. April 28, 1926)

SECTION 1. That from and after the enactment of this ordinance it shall be unlawful for any person within the said city of Washington, being the owner, lessee, occupant, or proprietor of any house, store, apartment, boarding-house, hotel, restaurant, or other place where garbage and rubbish, or either of them, is or may be produced or accumulated, to permit the same to accumulate in or on any such premises for a longer period of time than the interval herein prescribed between the collection of the same therefrom, or to dispose of said garbage or rubbish in any manner contrary to the provisions of this ordinance.

SEC. 2. That every person, being the owner, lessee, occupant, or proprietor of any place where garbage is or may be produced or accumulated, shall provide a sufficient number of water-tight metal receptacles to contain all garbage which may accumulate on said premises during the interval herein prescribed between the collections of the same; each receptacle shall have a tight cover and handles on the sides and shall be kept covered and in such place as to be convenient of access to the garbage collector; no such receptacle shall be of less capacity than 3 gallons nor greater than 10 gallons.

SEC. 3. That all garbage not collected daily must be thoroughly drained of water and other liquids and wrapped in paper before being placed in the receptacle provided for the same and must be kept free from inorganic substances, such as metal, glass, crockery, and the like.

SEC. 4. That all rubbish, such as cans, bottles, papers, rags, boxes, and crockery, shall be kept separate from garbage, in barrels or other receptacles convenient to handle, and shall not be permitted to otherwise accumulate in or on any premises within the city limits or to be disposed of in any manner contrary to the provisions of this ordinance.

SEC. 5. That garbage shall be collected daily from hotels, restaurants, apartment houses, and such other places as produce or accumulate the same in large quantities; from private residences, tenements, and all other places where garbage is produced or accumulated, but not in large quantities, it shall be collected at least once in each week.

SEC. 6. No garbage shall be buried in the ground nor deposited in any privy vault or cesspool nor burned in the open air or in an outdoor furnace; but it shall be lawful to burn garbage in an inside furnace or stove, provided the stack or chimney of said furnace or stove shall not be less than 30 feet in height.

SEC. 7. That all garbage shall be collected in trucks or wagons, having water-tight beds or bodies and fitted with proper covers, and shall be hauled to the city disposal plant at Arden, where the same shall be incinerated or otherwise disposed of by the persons in charge of said plant; all rubbish shall be collected in proper vehicles, such as will prevent the same from being scattered, and hauled to the city dumping ground at Arden, where it shall be disposed of by the city employees.

SEC. 8. No person other than an authorized collector shall collect or interfere with any garbage after it shall have been put into a garbage receptacle and deposited in the proper place for the collector, nor shall any unauthorized person molest, hinder, delay or in any manner interfere with an authorized garbage collector in the discharge of his duties.

SEC. 9. That the collection and disposal of garbage and rubbish shall be under the supervision of the superintendent of the department of public safety, who shall have authority to decide matters of dispute or controversy between the garbage collector and the persons for whom he collects as to the time and manner of collecting, the prices to be charged and the place for depositing receptacles; said superintendent is hereby authorized to impose a fine not to exceed \$1 for each and every failure of the collector to remove garbage on the day fixed for such removal, said fine to be paid by the garbage collector or to become a charge against his bond hereinafter required to be filed.

SEC. 10. That the garbage collector shall be entitled to charge and receive from the persons from whom he collects the following prices for the collection and disposal of garbage and rubbish: For each 3-gallon receptacle, not to exceed 15 cents; for each 5 to 6-gallon receptacle, not to exceed 20 cents; for each 6 to 10-gallon receptacle, not to exceed 25 cents; for each barrel of rubbish, not less than 25 cents nor more than 50 cents, according to weight; such charges may by agreement between the garbage collector and his customers be commuted to fixed charges for said collections by the day, week, or month.

SEC. 11. That any person who shall violate any of the provisions of this ordinance, upon conviction thereof before the mayor or any alderman of the city, shall be sentenced to pay a fine of not less than \$5 nor more than \$25 and the costs of prosecution and on failure to pay said fine and costs, may be sentenced to imprisonment in the county jail for a period not to exceed 10 days.

SEC. 12. That the city clerk is hereby authorized to advertise in the manner provided by law for bids for the collection of garbage and rubbish in accordance with the provisions of this ordinance and the proper corporate officers to enter into contract with the successful bidder for the proper performance of said work; no contract to be entered into for a period of less than one year nor more than two years. The successful bidder shall be required to give a bond to the city of Washington in the sum of \$3,000, with surety to be approved by the city council, conditioned for the faithful performance of his contract.

SEC. 13. That nothing in this ordinance or any contract made in pursuance thereof shall prevent the city council, upon the expiration of any contract with the garbage collector, from providing for municipal collection and disposal of garbage and rubbish in the city of Washington.

HEALTH AUTHORITIES

CHICAGO, ILL.

Board of Health—Creation, Appointment, Powers, and Duties—Regulations by. (Ord. January 13, 1926)

[Section 1781 of the Municipal Code, 1922, was amended to read as follows:]

1781. *Board of health; power to make rules and regulations; epidemics; regulations concerning.*—There is hereby created and established a board of health for the city of Chicago which shall consist of five members, who shall be appointed by the mayor, with the approval of the city council, two of whom shall be appointed for the term of three years, two of whom for the term of two years, and one of whom for the term of one year, from the 1st day of January, 1926. Thereafter, at the expiration of the term of any member of said board, his successor shall be appointed in like manner, and all persons thus appointed, and their successors, shall hold office for the term of three years from the 1st day of January last past. Any vacancy that may occur in the membership of said board of health shall be filled through appointment by the mayor, with the approval of the city council, for the unexpired term.

All members of the board shall serve without compensation.

The board of health shall elect annually, from its own members, a president, and such other officers as the board shall determine by its rules.

Such board of health shall have power to make such rules and regulations in relation to the sanitary condition of the city and for the prevention and suppression of disease, not inconsistent with the provisions of this chapter, as it may deem necessary or advisable. Such rules or regulations shall take effect and be in force 10 days after publication in the official newspaper of the city except in cases of emergency as hereinafter provided for. In case of contagious or epidemic disease or of danger from anticipated or impending contagious or epidemic disease, or in case the sanitary condition of the city shall be of such a character as to warrant it, it shall be the duty of the said board of health to make such rules and regulations and to take such measures and to do and order to be done and cause to be done such acts for the preservation of the public health (though not herein or elsewhere or otherwise authorized) as it may in good faith believe and declare the public safety and health demand, and all such rules and regulations so declared by the said board of health to be emergency rules and regulations shall take effect immediately, but as soon as may be after the promulgation of the same, the said emergency rules and regulations shall also be published, with notice that they are in force in the city of Chicago.

The board of health shall pass no rule or regulation which will compel any person to submit to vaccination, or injection of any virus, or medication, against his will or without his consent, or, in case of a minor or other person under disability, the consent of his or her parent, guardian, or conservator, and nothing in this ordinance contained, or in any other ordinance heretofore passed and in force in this city, shall be construed to authorize or empower any person or officer to so vaccinate, inject, or medicate, without such consent, or to authorize or empower the said board of health to adopt any rule or regulation requiring or authorizing any such vaccination, injection, or medication.

ELGIN, ILL.

Board of Health—Establishment—How Constituted—Organization, Meetings, and Powers—Regulations by. (Ord. March 16, 1925)

SECTION 1. There is hereby established a board which shall be known as the "board of health" and which shall consist of the mayor, the commissioner of public health and safety, the health officer, the city physician and one person

regularly licensed to practice medicine and surgery in the State of Illinois and who is a resident of the city of Elgin, Ill.

SEC. 2. The council, at its first meeting in May of each year, shall elect to said board of health a person regularly licensed to practice medicine and surgery in the State of Illinois, and who is a resident of the city of Elgin, Ill. Such person shall serve upon said board of health for the period of a year and until his successor is elected and qualified.

SEC. 3. The commissioner of public health and safety shall be ex officio president of the board of health, and in case of his temporary absence or inability to serve, the mayor shall preside at any meeting thereof. The health officer shall be the ex officio clerk of said board and shall keep the minutes of their proceedings and the records thereof.

SEC. 4. The board of health shall hold meetings in the city hall building of said city at such times as they may determine. A majority of the members of said board shall constitute a quorum for the transaction of business. The board of health may make and determine the rules for their own proceedings and such other rules and regulations as may be necessary for the execution of their powers and duties.

SEC. 5. The said board of health shall have the power to make such rules and regulations in relation to the sanitary conditions of the city and for the prevention and suppression of disease, not inconsistent with the laws of the State of Illinois and the ordinances of the city, as they may deem necessary or advisable.

SEC. 6. The jurisdiction of the board of health shall extend over the corporate limits and to a point one-half mile beyond the limits of the said city and all the rules, regulations, and ordinances relating to sanitation and public health shall apply and be in force over such territory.

SEC. 7. All orders and sanitary regulations of the board of health shall be obeyed by all persons in the city of Elgin and any member of said board may order the abatement of any nuisance contrary to any city ordinance which may be prejudicial to the public health. Whoever neglects or refuses to obey any order of said board or any member thereof, shall, for every offense be subject to a penalty not less than \$5 nor more than \$200.

MEMPHIS, TENN.

Department of Health—Organization, Powers, and Duties. (Ord. September 25, 1923, as Amended by Ord. January 22, 1924)

SECTION 1. That there is hereby established a department of health, which shall be under the general supervision and control of the superintendent of health, who shall be elected by the board of commissioners of the city of Memphis in accordance with the provisions of chapter 298 of the acts of the General Assembly of the State of Tennessee for 1909, as amended by chapter 452 of the private acts of the General Assembly of the State of Tennessee for 1921; *Provided, however,* That the mayor, as commissioner of public affairs and health, shall exercise all powers and perform all duties prescribed by chapter 298 of the acts of the General Assembly of the State of Tennessee for 1909, and all acts amendatory thereof. The salary of the superintendent shall be \$4,000 per annum payable in equal monthly installments.

SEC. 2. That the duties of said health department shall be performed and its powers exercised under four bureaus, to-wit: Bureau of administration, bureau of medical inspection, bureau of laboratories, and bureau of sanitary inspection, subject to the control of the mayor as commissioner of public affairs and health, as provided in the city charter, and subject to the provisions of this ordinance, any provisions of the laws of the State of Tennessee and the charter of the city of Memphis. The superintendent shall have the power and it shall be his duty to prescribe the work to be performed by each bureau, and the officers and employees thereof.

SEC. 3. That the bureau of administration shall have general control of all other bureaus and supervision and control over all accounts, books, and records of the department, including the registration of vital statistics which may be provided by law and shall be under the immediate direction of the superintendent.

SEC. 4. That the bureau of medical inspection shall have and exercise the powers of and perform the duties of the health department with respect to medical inspection and shall be divided into four divisions, to-wit: A division

of communicable diseases, a division of school inspection, [a] division of child hygiene, and a division of preventive dentistry.

The division of communicable diseases shall have general charge of seeking out, preventing, and controlling communicable diseases and shall be presided over by a director, whose salary shall be \$3,500 per annum, and which shall be payable in equal monthly installments.

The division of school inspection shall have general charge of and supervision over health inspections in public and private schools and shall be presided over by a director, whose salary shall be \$3,000 per annum and which shall be payable in equal monthly installments.

The division of child hygiene shall have general charge of health work among children exclusive of health inspections of children in attendance at school as hereinbefore provided, and shall be presided over by a director whose salary shall be \$3,000 per annum and which shall be payable in equal monthly installments.

The division of dental hygiene shall have general charge and supervision over inspections and care of the teeth and shall be presided over by a director whose salary shall be \$3,000 per annum and which shall be payable in equal monthly installments.

It shall be the duty of the superintendent to so divide the work of the bureau of medical inspection so as to avoid conflicts in the work of the different divisions and to this end he may prescribe necessary rules and regulations.

SEC. 5. That the bureau of laboratories shall have general charge and supervision over all laboratory work of the health department of the city of Memphis, and shall be in charge of a director, whose salary shall not exceed \$3,000 per annum, to be fixed by contract between him and the superintendent subject to the approval of the mayor, and whose salary shall be paid in equal monthly installments.

SEC. 6. That the bureau of sanitary inspection shall have and exercise general charge, supervision and control of sanitary inspections and shall be divided into two divisions, a division of sanitary engineering and a division of general sanitation.

The division of sanitary engineering shall have general charge of and supervision over surface drainage, of stagnant waters where they may affect public health, and mosquito eradication. It shall make statistical studies of health conditions, and shall cooperate with other departments in matters pertaining to water supply, sewage disposal, and other problems of sanitation. It shall be in charge of a director, whose salary shall be \$3,500 per annum, and whose salary shall be paid in equal monthly installments.

The division of general sanitation shall exercise control over the prevention and eradication of diseases among animals, the inspection of meats, milk, and food products, and investigations of complaints in matters of general sanitation. It shall be in charge of a director, whose salary shall be \$3,000 per annum, and whose salary shall be payable in equal monthly installments.

SEC. 7. That the directors of the several bureaus and divisions shall be appointed by the superintendent of the health department by and with the consent of the mayor. They shall not be appointed for any definite term, and may be discharged by the superintendent at any time at which he deems their services unsatisfactory.

It shall further be the duty of the said superintendent to appoint from time to time, subject to the approval of the mayor, such physicians, nurses, dentists, inspectors, clerks, laboratory technicians, and employees, as may be necessary to efficiently operate the several bureaus and divisions and to efficiently safeguard and preserve the health of the people of the city of Memphis, and they shall be subject to discharge by the superintendent at any time that their work is not efficient or satisfactory. The salaries of such assistants, employees, and agents shall be fixed by the superintendent subject to approval by the mayor.

In fixing the number of such assistants, employees, and agents, and their salaries the superintendent shall have due regard for the budget of his department as fixed for any current or incoming year, and the budget figures for the several bureaus and divisions shall be adhered to as near as may be.

SEC. 8. That the said superintendent shall have power and authority from time to time to establish and enforce all necessary rules and regulations for the government of said health department; to prescribe the duties of all physicians, dentists, engineers, veterinarians, laboratory technicians, nurses, inspectors, clerks, registrars, and other employees or agents of said department.

MIAMI, FLA.

Advisory Health Board—Creation, Appointment, and Duties. (Ord. 664, June 28, 1926)

SECTION 1. That an "advisory health board" be and the same is hereby created, said board to be composed of seven citizen members and the director of the department of public welfare as member ex officio.

SEC. 2. That all of the members of said board, except the director of the department of public welfare, shall be appointed upon request and recommendation of the city manager and shall hold office for the period of two years from the date of their appointment by the city commission and until their successors are appointed and qualified, and shall serve without compensation.

SEC. 3. That the director of public welfare shall be presiding officer at all meetings of said board, and he shall perform such duties as usually devolve upon such an officer in boards of similar capacity.

SEC. 4. Said board shall act in an advisory capacity in conjunction with the division of public health in the department of public welfare as provided by section 88 of the city charter.

SEC. 5. That the membership of said board shall consist of three licensed physicians, an attorney at law, a sanitary engineer, the superintendent of public instruction, a member of the parent-teachers association and the director of the department of public welfare as ex officio member.

SAVANNAH, GA.

Consulting Health Officer—Office Created—Election, Salary, and Duties. (Ord. July 11, 1923)

SECTION 1. That the office of consulting health officer for the city of Savannah be and the same is hereby created.

SEC. 2. Such consulting health officer shall be elected by council immediately after the adoption of this ordinance, and shall serve until the next regular election for city officers; and thereafter to be elected as other city officers.

SEC. 3. The salary of such officer shall be at the rate of \$4,000 per annum, payable in the same manner as salaries of other officers of the city of Savannah are paid.

SEC. 4. The consulting health officer shall perform such work and do such things as he may from time to time be called upon to do or perform by the mayor of the city, the mayor and aldermen of the city and the health department of the city of Savannah.

Supervisor of Public Health Nurses—Appointment, Salary, Duties, and Removal. Public Health Nurses—Appointment and Duties. (Ord. October 3, 1923)

SECTION 1. That the office of supervisor of public health nurses is hereby created, such office being appointive by the mayor of Savannah, on recommendation of an examining board.

SEC. 2. That the board for examining applicants for the position of supervisor of public health nurses shall consist of the health officer and of the health committee of city council.

SEC. 3. The examining committee named in the preceding section shall forthwith conduct an examination for the position of supervisor of public health nurses in such manner and upon such grounds as the committee may determine, but there shall be submitted evidence by each applicant, at the time of examination, concerning the character, education, and experience in public health work of such applicant.

SEC. 4. That the supervisor of public health nurses shall hold office for term of two years, and until a successor is selected and appointed in the manner as in this ordinance provided, at a salary to be fixed by the city council of Savannah upon recommendation of the mayor of Savannah, which salary shall not be changed during any term of office.

The supervisor of public health nurses may be removed at any time for inefficiency or unbecoming conduct, but shall be entitled before removal to a public

trial before the board of sanitary commissioners of the city of Savannah, whose decision shall be final, upon written charges and at least 10 days' notice thereof of the time and place of trial.

Sec. 5. That the public health nurses of the city of Savannah, other than the supervisor of public health nurses, shall be appointed by the mayor of Savannah upon recommendation of the supervisor of public health nurses and the health officer of the city of Savannah, with the approval of the health committee of city council, and that the supervisor of public health nurses and the public health nurses shall be under the direction and control of the board of sanitary commissioners of the city of Savannah and of the health officer, as its executive officer, and the said supervisor of public health nurses and the public health nurses shall perform such duties and make such reports as are, from time to time, required by the board of sanitary commissioners and said health officer.

City Bacteriologist—Appointment, Salary, Duties, and Removal. (Ord. October 3, 1923)

First. That all of section 1132 of Atkinson's Code of Savannah after the words printed in heavy black type "city bacteriologist" be stricken out and in lieu thereof the following be substituted after the said words "city bacteriologist," to wit: The office of city bacteriologist of the city of Savannah is hereby established and the mayor of the city of Savannah is hereby authorized to appoint as bacteriologist the person recommended for said office by examiners herein provided for; and the person so selected as city bacteriologist shall also be director of the municipal public health laboratory.

Second. That the person so appointed for said office shall be recommended by the health officer of the city of Savannah, and the health committee of city council, constituting a board of examination for the purpose of selecting a candidate for said office.

The person deemed by said board to be the best qualified as the result of such examination based upon educational qualifications, experience in laboratory work and recommendations as to character and ability of the candidate, in addition to such other qualifications and requirements as said committee may deem advisable, shall be recommended to the mayor for appointment.

Third. That the salary of said city bacteriologist shall be determined by the mayor of the city of Savannah with the approval of the chairman of the finance committee, and the salary so fixed shall not be decreased during the term of office of said city bacteriologist.

Fourth. That the person so selected to hold said office of city bacteriologist of the city of Savannah shall hold said office for the term of five years from and after the date of qualification and until his successor is appointed, unless sooner removed by the board of sanitary commissioners for inefficiency or unbecoming conduct: *Provided, however*, Said bacteriologist shall not be removed by said board of sanitary commissioners until he shall have written notice of the charges against him at least 10 days before the meeting of the board of sanitary commissioners to consider said charges, and he shall have the right to defend himself against such charges at the trial before said board of sanitary commissioners, which trial shall be open to the public.

Fifth. Said bacteriologist of the city of Savannah shall qualify by taking and subscribing the usual oath required by city officials before the mayor of the city of Savannah, and he shall be under the control and direction of said board of sanitary commissioners, and of the health officer as its executive officer, and he shall make all examinations and reports required by said board and said health officer and shall perform such duties as may from time to time be prescribed by said board.

Sixth. The said bacteriologist shall have and keep his office in the city hall and shall devote all of his time to the work of the city of Savannah, and shall receive no fee in addition to the salary to be paid him.

HOSPITALS, HOMES, AND NURSERIES¹

CHICAGO, ILL.

Hospitals—Location. (Ord. December 29, 1926)

SECTION 1. That section 1863, Article X of Chapter XXXIV of the Chicago Municipal Code of 1922 be, and the same is hereby, amended to read as follows:

1863. *Location of hospital near school or playground.*—No hospital of any kind or description shall hereafter be erected or established within 200 feet of any property used for a public or parochial school or as a public playground: *Provided*, That in the case of a hospital designed or maintained for the treatment of contagious diseases, no such hospital shall hereafter be erected or established within 400 feet of any property used for a public or parochial school or as a public playground.

DETROIT, MICH.

Day Nurseries—Permit—Regulations Authorized—Inspection—Closing. (Ord. 185-B, April 25, 1925)

SECTION 1. *Defined.*—For the purpose of this ordinance a day nursery is defined as an institution or a place in which are received one or more children not of same parentage, under the age of 14 years, for periods of over 2 hours, but not exceeding 15 hours, for nursing or care apart from their parents or guardians, irrespective of compensation or reward.

SEC. 2. *Application for permit.*—Any person, firm, association, or corporation desiring a permit to open, maintain, and conduct a day nursery shall make application therefor in writing to the commissioner of health and shall state the present or proposed location of the day nursery, the purpose for which it is to be opened, maintained, or conducted, the present or proposed accommodations for the care of children, the nature of the care to be given therein, the name and address of the superintendent or of the person or persons to be in charge thereof, and the name and address of the physician who is to be employed for the day nursery or who is to advise or attend therein. Such application shall be made on blanks provided for that purpose by the commissioner of health.

SEC. 3. *Inquiry—Character—Permit.*—It shall be the duty of the commissioner of health, when such application is made, to make or cause to be made a strict inquiry of the statements therein contained and a thorough inspection of the premises proposed to be used for a day nursery. If he shall find that the day nursery is suitably and properly located, that it will afford proper and adequate accommodations for the children to be received therein, that the applicant is making the application in good faith for care and betterment of children and is a suitable person, firm, association, or corporation for that purpose, that the superintendent or person to be in charge thereof is of good moral character and has sufficient knowledge, experience, and ability properly to conduct, manage, and maintain such day nursery, and that such place and such day nursery complies in all respects with the requirements hereinafter set forth, then the commissioner of health shall issue, or cause to be issued, a permit authorizing such applicant to open and conduct a day nursery at the place specified, which permit shall state the maximum number of children that may be cared for at one time. Every permit issued hereunder shall expire on the 31st day of May of each year. No permit shall be issued for a second or succeeding period except upon and after a reinspection of the premises and in the manner herein provided. The board of health shall make such rules and regulations governing day nurseries as they deem necessary. Failure to comply with any such rule or regulation shall be sufficient cause for the revocation of the permit by the board.

SEC. 4. *Right of entry—Revocation of permit.*—It shall be the duty of the commissioner of health to inspect all day nurseries as often as he shall deem necessary for adequate supervision of the same. He hereby is given the right, either by

¹ See also Births and deaths, p. 31

himself or his representative, to enter all such places for the purpose of making inspection. If upon such inspection the commissioner shall find that any day nursery is conducted or managed in violation of the rules and regulations of the city of Detroit or of the laws of the State of Michigan, then and in that case, he may ask the board to revoke the permit.

SEC. 5. *Penalty.*—Any person, firm, association, or corporation that opens, maintains, or conducts a day nursery without first having been granted a permit therefor, or after the due revocation of such permit, or in violation of any of the rules and provisions of this ordinance; and any person who violates any of the rules and provisions of this ordinance, and upon conviction thereof shall be punished by a fine of not more than \$200, or by imprisonment in the county jail for a period of not more than 6 months or by both such fine and imprisonment in the discretion of the court, for each offense. If any person, firm, association, or corporation conducting a day nursery shall be found guilty of a violation of any of the provisions of this ordinance, relating to the safety of or the accommodations for the children, it shall be the duty of the commissioner of health and he hereby is authorized to close such day nursery and keep it closed until such repairs or alterations shall be made as will make it comply with the provisions of the ordinance.

Day Nurseries—Requirements Governing. (Reg. Bd. of H., 1925)

1. No child shall be admitted to the day nursery without a certificate of health issued by a physician in good standing based upon an examination made 24 hours preceding admission. This certificate should show that the child has been successfully vaccinated or that vaccination took place at the time of the examination.

2. No more children shall be admitted daily than are allowed by the license.

3. The nursery shall be located above the level of the ground and shall be sufficiently large to afford each child 200 cubic feet of air space. There shall be adequate and adjustable windows opening into the open air. These windows shall be equipped with screens from April 1 to November 1. The window area shall be equal to one-eighth of the floor space. The walls, ceilings, and floors shall be washable. The heating apparatus shall be capable of maintaining a temperature of 70° at all times. Open fireplaces and stoves within reach of the children shall be kept screened. There shall be an adequate supply of running hot and cold water at all times. There shall be adequate facilities for bathing the children.

4. The nursery shall be kept perfectly clean at all times. Dry dusting and sweeping shall not take place while the children are present.

5. Suitable toilet facilities shall be provided. The construction and elevation shall be suited to the needs of the children and shall have split seats. Separate toilets shall be provided for boys and girls of school age.

6. An isolation room for cases of suspected contagion shall be provided.

7. Such protection as is prescribed by the department of public safety shall be provided against fire.

8. Each day nursery shall have a playground and sufficient equipment to properly entertain the children. There shall be ample space and equipment indoors as well for their accommodation in stormy weather.

9. Metal beds shall be used and there shall be at least 2 feet of space on all sides except where the bed touches the wall. Mattresses shall be formed of some suitable washable material, and shall be protected with rubber sheeting of good quality.

10. A well-ventilated place for children's outer garments shall be provided. The hooks shall be so far apart that the clothing can not touch.

11. Individual wash cloths, towels, and combs shall be provided.

12. Unless the clothing worn by a child is thoroughly clean on admission a substitute garment (property of the nursery) shall be put on for the day and every such garment shall be marked for identification unless a clean garment is provided daily.

13. Daily inquiry shall be made of the mothers or other persons bringing children to the nursery as to whether or not any sickness exists in the homes, and if any suspicion is aroused as to the possibility of such home sickness being of an infectious nature, the child shall be excluded and the department of health notified. Such exclusion shall continue until a certificate of the department of health is furnished to the effect that the premises referred to are free from infectious disease.

14. Daily inspection of all children upon admission shall be made by some competent person to detect symptoms of contagious disease. If there is any reason to believe that the child is unwell, his temperature shall be taken and if it be above 99.2°, the child shall be excluded, and if this is not possible he shall be placed in the isolation room until he can be sent home.

15. If a child is absent from the nursery because of illness, he should not be readmitted without a reexamination to determine him free from infection.

16. Provision should be made for medical supervision of children either by cooperation with clinics or by the employment of a visiting physician. The physician shall make regular visits to the nursery and shall reexamine every regularly attending child at least once a month.

17. Emphasis shall be laid on the teaching of personal hygiene to the children.

18. Every attendant in the service of the nursery shall be free from all communicable disease. They shall have proper health, education, experience, and training to enable them to perform their duties properly.

19. A regular schedule for meals, naps, nursing of infants, and bottle feeding shall be maintained.

20. Suitable provision shall be made for a daily rest period for all children less than 3 years of age and for all others that may need that care.

21. Adequate care must be taken of all bottles, nipples, and milk used in infant feeding. The food for the other children shall be suitable, adequate, and include sufficient milk for their needs.

22. A record shall be kept in each nursery of each child admitted, giving its name, address, names and whereabouts of parents, and the reason the child is placed in the nursery.

23. It shall be the duty of the day nursery to report to the department of health all cases of infectious disease that come to their attention.

MILWAUKEE, WIS.

Day Nurseries—Permit—Sanitary Requirements—Keeping of Register—Reports by—Inspection—Closing. (Ord. November 23, 1925)

SECTION 1. Day nursery defined.—For the purposes of this article a day nursery is defined as an institution or a place in which are received three or more children not of common parentage, under the age of 14 years, at one time, for periods of over 4 hours but not exceeding 24 hours, for nursing or care apart from their parents, whether for compensation, reward, or otherwise.

SEC. 2. Permit required.—It shall be unlawful for any person, firm, association, or corporation, other than the regularly constituted authorities of the United States, the State of Wisconsin, the county of Milwaukee or the city of Milwaukee to open, maintain, or conduct, a day nursery within the corporate limits of the city of Milwaukee without first having been granted a permit therefor as hereinafter provided.

SEC. 3. Application for permit.—Any person, firm association, or corporation desiring a permit to open, maintain, and conduct a day nursery shall make application therefor in writing to the commissioner of health, stating the present or proposed location of the day nursery, the purpose for which it is to be opened, maintained, or conducted, the present or proposed accommodations for the care of children, the nature of the care to be given therein, the name and address of the superintendent or of the person or persons to be in charge thereof, and the name and address of the physician who is to be employed for the day nursery or who is to advise or attend therein.

SEC. 4. Inquiry—Character—Permit.—It shall be the duty of the commissioner of health, when such application is made, to examine said application and to make or cause to be made such inquiry as he may deem advisable as to the truth of the statements therein contained and a thorough inspection of the premises proposed to be used for a day nursery and such further inquiry or investigation as said commissioner of health may deem necessary or advisable. If he shall find that the day nursery is suitably and properly located, that it will afford proper and adequate accommodations for the children to be received therein, that the applicant is making the application in good faith for the care and betterment of children and is a suitable person, firm, association, or corporation for that purpose, that the superintendent or person to be in charge thereof is of good moral character and has sufficient knowledge, experience, and ability properly to conduct, manage, and maintain such day nursery, and that such place and such day nursery complies in all respects with the requirements hereinafter set forth, then the commissioner of health shall issue, or cause to be issued, a permit authorizing

such applicant to open and conduct a day nursery at the place specified, which permit shall state the maximum number of children that may be cared for at one time. The fee to be paid annually to the city treasurer for such day nursery permit shall be \$1. Every permit issued hereunder shall expire on the 31st day of December of the year in which it is issued. No permit shall be issued for a second or succeeding period except upon and after a reinspection of the premises and in the manner herein provided.

SEC. 5. Accommodations for inmates.—Every room in the day nursery to be used for the care of children shall be of such dimensions as to give each child not less than 200 cubic feet of air space. Every such room shall have a window area equal to not less than 15 per cent of the floor space. All such rooms shall be adequately ventilated so as to secure for each inmate at least 1,500 cubic feet of air per hour. Except in extremely cold weather adequate ventilation must be maintained so far as possible, by means of open windows. All such rooms for the care of children under the age of 6 years shall be located so that the floor will not be below the surface of the ground surrounding the building or below the level of the street sidewalk. The doors and windows of the day nursery shall be provided with screens and every appliance necessary for the exclusion of flies from the 15th of June to the 15th of October of each year.

The day nursery shall be adequately supplied with hot and cold water and toilet facilities within the building or part of the building used as such day nursery. There shall be provided a well-ventilated room or compartment for the storing of the outer garments of the children. There shall also be provided a room which shall have been approved by the commissioner of health for the isolation of contagious, communicable, and infectious diseases. The building or buildings used as a day nursery shall comply with the requirements of the department of buildings and bureau of fire prevention and public safety.

SEC. 6. Regulations as to sanitation.—No greater number of children shall be cared for at one time than is specified in the permit. All furnishings and equipment of the day nursery at all times shall be kept clean and sanitary. Dry cleaning and sweeping shall not be permitted. The common use of wash cloths, towels, bed linen, combs, tooth brushes, hair brushes, and drinking cups is prohibited. The mattresses or under blankets of the cribs or beds must be protected by rubber or oilcloth, and they shall be kept clean and in a sanitary condition at all times. Each bed or crib shall be so placed that there will be a space of 1 foot on all sides except where the head or one side of the bed may touch the wall.

The outer garments of the children shall be removed and placed in the room provided therefor. If the clothing worn by any child admitted to the nursery is not thoroughly clean, there shall be provided an overapron which shall be worn throughout the day. The common use of aprons is prohibited. All diapers that have become soiled during the day shall be placed immediately in water in a covered vessel especially provided for the purpose; and as soon thereafter as practicable they shall be thoroughly washed and boiled. The removal of diapers from the premises in an unclean condition shall not be permitted. The refrigerators and all utensils must be kept clean and sanitary. The milk and food provided must be clean, wholesome, and suitable for the children. Milk bottles and nipples shall be kept thoroughly cleaned and sterilized at all times.

SEC. 7. Inspection of children for evidences of contagious and communicable diseases.—Each child, upon application for admission, shall be stripped and given a thorough and complete medical examination by the nursery physician or at a dispensary or infant welfare station. Such examination shall include the necessary laboratory tests. Children may be admitted only where the results of the aforesaid examinations show the child to be free from contagious or communicable disease and duly protected against contagious disease. Every child shall be reexamined for admission after an absence of one week: *Provided*, All expense of the above mentioned examinations must be borne by the day nursery.

Each child shall be inspected by the matron each and every time it is admitted to the nursery, and if suspicious signs of any communicable disease appear, the child must be placed in the isolation room and kept entirely apart from the other children until examined by a regular licensed physician or returned to parent or guardian under the supervision of the superintendent, matron, or attending physician, in accordance with the quarantine rules of the department of health. In either case, the commissioner of health shall be notified unless the physician has diagnosed the case as not communicable.

It shall be unlawful to receive or admit into any day nursery any child afflicted or suspected of being afflicted with any contagious, infectious, or parasitic disease, including tonsillitis, infantile paralysis, corvza, conjunctivitis, bronchitis,

tuberculosis, sarcoma, impetigo contagiosa, pediculosis, ringworm, favus, or gonorrheal vaginitis: *Providing*, That the placing of such child in the isolation room shall not be deemed as admitting to the day nursery.

The physician employed by or attendant upon the day nursery shall be a duly licensed physician, in good professional standing, and he shall visit the nursery and make inspections of all the children therein at least once in each week.

SEC. 8. *Register to be kept.*—It shall be the duty of every person, firm, association, or corporation conducting a day nursery to enter in a register to be kept for that purpose the name and address of each child received, the date of reception, the names and addresses of the parents or guardians of the child, and the reason it is brought to the nursery; also immediately upon the removal of any child, to enter the time of such removal and the names and addresses of the person or persons by whom it was removed, and also to keep on file signed reports of all medical examinations. Such register and reports shall be open at all times for the inspection and use of the commissioner of health.

SEC. 9. *Daily and monthly reports.*—It shall be the duty of every person, firm, association, or corporation conducting, managing, or maintaining a day nursery to report to the commissioner of health at once, both by telephone and by mail, all cases and suspected cases of contagious diseases, such as smallpox, chicken pox, diphtheria, scarlet fever, mumps, measles, German measles, impetigo contagiosa, typhoid fever, tuberculosis, infantile paralysis, epidemic cerebrospinal fever, pneumonia, and any other disease that may be classified by the commissioner of health as actively communicable. The report shall give the names and addresses of persons so afflicted and such other information as may be required by the commissioner of health or may aid in eradicating such diseases.

It shall also be the duty of every person, association, firm, or corporation conducting a day nursery to make a report in writing to the commissioner of health, on or before the fifth day of each calendar month, giving a complete record of the nursery during the preceding calendar month, showing the number of children admitted, all accidental injuries and deaths, the cause or causes of same, and such other information as may be specified by the commissioner of health or may be necessary to an intelligent supervision of the nursery.

All reports required herein shall be made upon blanks which shall be furnished for the purpose by the commissioner of health. All monthly reports shall be signed by the superintendent or the official in charge.

SEC. 10. *Right of entry—Revocation of permit.*—It shall be the duty of the commissioner of health to inspect all day nurseries as often as he shall deem necessary for adequate supervision of the same, or whenever he shall have received the complaint of two or more persons that any day nursery is not managed in compliance with the provisions of this ordinance or for the best interests of the children received therein. He hereby is given the right, either by himself or his representative, to enter all such places for the purpose of making inspections. If upon such inspection the commissioner shall find that any day nursery is conducted or managed in violation of the provisions of this article, or in violation of any of the ordinances or regulations of the city of Milwaukee or of the laws of the State of Wisconsin, it shall be the duty of the commissioner of health to serve an order upon the permittee or his agent or employee in charge of said day nursery directing him within a certain reasonable time to comply with said ordinances, regulations, or statutes. If the permittee shall fail to comply with said order within the time designated, the commissioner may serve said permittee, his agent, or employee in charge of said day nursery with a notice in writing that at a time not less than 48 hours from the time of service of said notice a hearing will be held at a place designated in said notice to determine whether the permit shall be revoked. If upon said hearing it appears that the provisions of this article, or the ordinances or regulations of the city of Milwaukee or the laws of the State of Wisconsin have not been complied with, the commissioner of health is authorized to revoke the permit issued for said day nursery.

SEC. 11. *Penalty.*—Any person, firm, association, or corporation that opens, maintains, or conducts a day nursery without first having been granted a permit therefor or after the due revocation of such permit or violates any of the provisions of this ordinance shall be fined not less than \$10 and not more than \$200 for each offense. If any person, firm, association, or corporation conducting a day nursery shall be found guilty of a violation of any of the provisions of this article, relating to the safety of or the accommodations for the children, it shall be the duty of the commissioner of health and he hereby is authorized to close such day nursery and keep it closed until such repairs or alterations shall have been made as will make it comply with the provisions of the article.

PATERSON, N. J.

Boarding Homes for Children and the Business of Placing Children—License—Inspection—Keeping of Records. (Reg. Bd. of H., January 9, 1923)

Definition.—A. "Boarding home for children" as referred to in the following ordinance shall mean any home or house or other place conducted by any person or association who advertises himself, herself, or itself or holds himself, herself, or itself out as conducting a boarding home for children, or who has in his, her, or its custody or control one or more children unattended by parents or guardians for the purpose of providing such children with food or lodging, excepting children related to him or her by blood or marriage, or having been legally adopted by him or her.

B. The term "person" as used in this ordinance shall be construed to include all individuals, associations, co-partnerships, or corporations.

SECTION 1. License.—It shall be unlawful for any person or association to conduct or maintain a boarding house for children or to engage in conducting a business of placing children, without having a written license therefor from the board of health.

SEC. 2. Terms of license.—No license above provided for shall be granted for a term exceeding one year, and shall expire on December 31 of said year.

SEC. 3. Information on license and posting thereof.—Every such license shall state the name of the licensee, the particular premises in or at which the business shall be carried on, and the number of children that may be maintained, boarded, or cared for at any time, and said license shall be posted in a conspicuous place in the house or other place at which the business is conducted.

SEC. 4. Number of inmates permitted.—No greater number of children shall be kept at one time on the premises than is authorized in the license, and no children shall be kept or disposed of within a building or place not designated in the license.

SEC. 5. Record and revocation of license.—The record of such license when issued shall be kept by the board of health. Said license shall be subject to revocation for violation of any of the regulations mentioned herein or whenever, in the judgment of the board of health, such boarding home is not conducive to the well-being of the children.

SEC. 6. Visitation and inspection.—The board of health shall visit and inspect, or designate persons to visit and inspect, the premises and investigate the manner of conducting the business licensed. Said board and such persons shall have the right to call for and examine the records required by these regulations to be kept, and to inquire into all matters concerning such licensed premises and the children therein at any time, and it shall be the duty of the licensee to give information to such persons and afford them every reasonable facility for examining the records, inspecting the premises and seeing the inmates thereof.

SEC. 7. Record to be kept by licensee.—Every person conducting a boarding house for children, or engaged in the placing of children as defined in these regulations, shall keep a record in a form to be prescribed by the board of health, wherein shall be entered the name, age, sex, color, and religion of every child cared for or treated by him or her, or brought to him or her for placing, or finding a home for, or giving out for adoption, or otherwise disposing of, together with the name and address of each of the parents of said child; the name of every child who dies while in his or her care, together with the date of such death; also the name and residence of the person with whom the child is placed or by whom it is adopted; this entry to be made within 24 hours after such child is given out, taken away or disposed of in any manner. A true copy of such record shall be sent to the board of health at such times as the board of health shall require.

SEC. 8. Penalty.—Any person violating any provision of this ordinance shall be subject, upon conviction, to a fine not exceeding \$50, or by imprisonment in the county jail for a term not exceeding 30 days or both.

SACRAMENTO, CALIF.

Hospitals—Permit—Keeping of Register—Inspection. (Ord. 207, 4th Series, February 19, 1925)

SECTION 1. For the purpose of this ordinance a hospital, sanitarium, sanatorium, and maternity or lying-in asylum is hereby defined to be an institution or place used for the reception, or care, either temporary or continuous, of one or more sick, injured or dependent persons including any woman or women awaiting

confinement, or used for the treatment and care of one or more persons suffering from or afflicted with physical or mental disease or incompetency or bodily injury, or infirmity, but shall not include any private home or residence used for the care of any member of the family occupying such private home or residence.

SEC. 2. Every person, firm, or corporation desiring to establish, maintain, or conduct a hospital, sanitarium, sanatorium, maternity or lying-in asylum in said city of Sacramento shall make application in writing to the health officer of said city, signed by the applicant, for a permission so to do, which application shall contain a statement giving a sufficient description of the property or place in or upon which the applicant proposes to establish, maintain, or conduct such hospital, sanitarium, sanatorium, maternity or lying-in asylum, and the ills or weaknesses of the persons whom the applicant proposes to receive, care for, or treat therein or thereat, and shall produce therewith such references as to the character, reputation and professional standing of the applicant as shall be satisfactory to said health officer.

It shall be the duty of the health officer, upon the receipt of such application, to make or cause to be made strict inquiry into the facts set out in such application, and if upon such inquiry said health officer shall find such hospital is, or is intended to be, conducted so as to comply with all the laws, ordinances, rules, and regulations which shall then be in force in said city concerning the location, management, and control of such hospitals, and that the same shall not be a menace or probable menace to the public peace, health, comfort, and welfare, then said health officer shall grant a permit to conduct such hospital and shall issue or cause to be issued a permit authorizing such applicant to open, conduct, manage, or maintain such hospital at such place in the manner and for the purpose in such application set forth.

SEC. 3. It shall be the duty of every person, firm, or corporation operating or maintaining a hospital, sanitarium, sanatorium, or maternity or lying-in asylum to keep a register where shall be entered the names and addresses of all inmates or persons received for care or treatment or cared for or treated in such hospital, sanitarium, sanatorium, or maternity or lying-in asylum and the character of the illnesses or weaknesses with which they are suffering and a list and the parentage of all children born therein. Said register shall also contain the name, age, and parentage of every child who is given out to, or adopted or taken therefrom by, any person, together with the name and residence of the person so adopting or taking such a child therefrom, and within 48 hours after such child is given out or taken away, the person, firm, or corporation operating or conducting such hospital, sanitarium, sanatorium, or maternity or lying-in asylum shall cause a correct copy of the register relating to such child to be delivered to the health officer of said city.

SEC. 4. Every hospital, sanitarium, sanatorium, or other place, conducted, maintained, or managed, by any person, firm, or corporation, under the provisions of this ordinance, shall at all reasonable times be open to the inspection of the health officer of said city, or by any person duly appointed by said health officer to make such inspection, and said health officer is empowered hereby to inspect the same or cause inspection to be made, whenever and as often as they may deem proper. If upon such inspection said health officer shall find any such hospital to be conducted or maintained in violation of the terms of the application hereinbefore referred to, or in violation of any of the provisions of this ordinance or any of the laws of the State of California or of the city of Sacramento, then such health officer shall revoke such permit issued to such person for the conducting, managing, and maintaining of such hospital, or said health officer may revoke said permit for any other good and sufficient cause which in their discretion may seem necessary for the protection of the public peace, health and comfort.

SEC. 5. Any person, firm, or corporation violating any of the provisions of this ordinance shall be deemed guilty of a misdemeanor and upon conviction thereof shall be punishable by a fine of not exceeding \$500 or by imprisonment in the city jail of the city of Sacramento, or in the county jail of the county of Sacramento, in the State of California, for a period of not more than six months, or by both such fine and imprisonment, and any day during any portion of which any violation of any of the provisions of this ordinance is committed, continued or permitted shall constitute a separate offense and the person, firm, or corporation guilty thereof shall be punishable according to the provisions of this ordinance.

ICE CREAM¹

ELIZABETH, N. J.

Ice Cream—Definition—Manufacture and Sale. (Reg. Bd. of H., June 10, 1926)

SEC. 110. *Definition of.*—Ice cream is hereby defined as the frozen product made from cream with the addition of milk or milk products or eggs, fruit juices, or nuts with or without sugar or artificial flavoring or colors. It shall contain not less than 8 per cent of milk fats, except when the ingredients include fruit, nuts, or eggs, in which case it shall contain not less than 6 per cent of milk fats.

SEC. 111. *Ingredients to be of good quality—What colors may be used.*—All ingredients used in ice-cream mixtures or preparations shall be of good quality and free from rancid or harmful properties, and no artificial colors shall be used except those certified by the United States Department of Agriculture.

SEC. 112. *Preservatives not to be used.*—No ice cream shall contain boric acid, salicylic acid, formaldehyde, saccharine, or any other substance or compound known or likely to be harmful to health: *Provided*, That nothing in this section shall be construed to prohibit the use of condensed or evaporated milk, milk powder, homogenized milk fats, gelatine, or vegetable gums.

SEC. 113. *Requirements for manufacturing and selling.*—No person shall manufacture, sell, or offer for sale in the city of Elizabeth any ice cream unless according to the following requirements:

- A. The ice cream plant must be properly screened.
- B. The floors, walls, and ceilings must be sanitary.
- C. The water-closet and urinals must be separated from the plant.
- D. The room used for mixing cream must be close-ceiled, properly ventilated and screened, and with no unsanitary surroundings or neighborhood.
- E. All utensils and all cans used in the manufacture or distribution of ice cream must be of suitable material, and must be sterilized at a temperature of at least 212° F. for not less than 15 minutes, and a suitable room must be provided where such cans can be kept and sterilized.
- F. All persons engaged in said manufacture or sale must be clean both in person and appearance and must wear a suitable clean suit.
- G. No ice cream shall be refrozen.
- H. All milk and cream used in the manufacture of ice cream shall be pasteurized.
- I. No ice cream shall contain at any time more than 500,000 bacteria per cubic centimeter.

HAMILTON, OHIO

Ice Cream—Sale and Dipping on Streets and Public Grounds. (Reg. Bd. of H., May 14, 1924)

SECTION I. No person by himself or by his servant, agent, or employee, or as the servant, agent, or employee of another person, partnership, or corporation, shall sell or offer for sale on any of the highways or public grounds within the city of Hamilton, county of Butler, and State of Ohio, any ice cream, nut ice cream, fruit ice cream, French ice cream, or flavored ices or ice balls, except the same be contained in sealed or locked cans or other receptacles approved by the board of health of the said city of Hamilton, said cans or other receptacles to be sealed immediately after filling the same, which filling and sealing shall be done only in a plant where the same is manufactured, the sanitary condition of which shall be approved by this board.

¹ See also Milk and milk products, p. 164.

SEC. II. The dipping of any ice cream, nut ice cream, fruit ice cream, French ice cream, or flavored ices, or the manufacturing of ice balls upon any thoroughfare or public grounds of said city of Hamilton, is hereby prohibited.

SEC. III. Any person violating any of the provisions of this regulation shall, upon conviction thereof, be punished as provided by law.

NEW ROCHELLE, N. Y.

Ice Cream—Manufacture, Transportation, Storage, and Sale. (Reg. Bd. of H., April 9, 1925)

SECTION 3. No person shall manufacture for sale, sell, or expose or offer for sale in the city of New Rochelle any ice cream, sherbet, or similar frozen product without a permit from this board. The fee for such permit shall be \$1, and such permit shall expire on March 31, following date of issue.

The manufacture and sale of ice cream, sherbets, etc., shall be in accordance with the regulations of this board.

REGULATIONS

I. All materials incorporated in ice cream shall be clean, sound, and wholesomes. All milk, condensed milk, or cream shall be Pasteurized and shall at all time. previous to use comply with the standards prescribed by this board for grade B Pasteurized milk or cream.

All finished products shall be free from excessive bacterial content.

All milk, condensed milk, or cream shall be kept at a temperature not exceeding 50° F.

No old or melted ice cream or ice cream returned to a manufacturer in a broken package shall again be used in the preparation of ice cream.

II. No ice cream shall be manufactured or stored in any portion of a building which is used for the stabling of horses or other animals, or in any room used in whole or in part for domestic or sleeping purposes unless the manufacturing or storage room for ice cream is separated from other parts of the building by impenetrable walls, without doors, windows, or other openings.

III. All rooms in which ice cream is manufactured or stored shall be provided with tight walls and floors and kept constantly clean. No accumulation of rubbish, useless, offensive, or dust-collecting materials shall be allowed therein. The floors and walls of said rooms shall be of such construction as to permit rapid and thorough cleansing. Doors, windows, and other openings shall be properly screened and the rooms kept free from flies. The rooms aforesaid shall be equipped with adequate appliances for washing and sterilizing all utensils employed in the mixing, freezing, storage, sale, or distribution of ice cream, and all such utensils after use shall be thoroughly washed and sterilized.

IV. No container used in the manufacture or sale of ice cream shall be used for any other purpose.

No person shall use a utensil of any kind or description in the service or sale of ice cream the use of which has been disapproved by this board, and no person shall use any utensil in the service or sale of ice cream unless said utensil is washed and sterilized in boiling water or live steam at least once a day or oftener if necessary; and no person shall use his fingers or hands to remove particles of ice cream, ice, or other matter from inside any vessel containing ice cream intended for sale.

V. All establishments in which ice cream is manufactured shall be equipped with facilities for the proper cleansing of the hands of operatives; and all persons immediately before engaging in the mixing of the ingredients entering into the composition of ice cream, or its subsequent freezing and handling, shall thoroughly wash his hands and keep them clean during such manufacture and handling.

All persons shall be dressed in clean outer garments while engaged in the manufacture and handling of ice cream.

No urinal, water-closet or privy shall be located in any rooms where ice cream is manufactured or so situated as to pollute the atmosphere of said rooms. In every urinal, water-closet or privy used by employees shall be posted a conspicuous sign notifying employees to wash hands after using urinal or toilet.

VI. All vehicles used in the conveyance of ice cream for sale or distribution shall be kept in a cleanly condition and free from offensive odors.

VII. Ice cream kept for sale in any shop, restaurant, or other establishment shall be stored in a covered box or refrigerator. Such box or refrigerator shall

be properly drained and shall be kept clean and tightly closed, except during such intervals as are necessary for the introduction or removal of ice cream or ice. Said box or refrigerator shall be kept only in such locations and under such conditions as shall be approved by this board.

VIII. Every person engaged in the manufacture, storage, transportation, sale, or distribution of ice cream immediately upon the occurrence of any case of communicable disease, either in himself or in his family, or amongst his employees, or within the building or premises where ice cream is manufactured, stored, sold or distributed, shall notify this board, and at the same time shall suspend the sale and distribution of ice cream until authorized to resume the same by the health officer.

No person shall use to hold or convey ice cream any container which has been handled by a person suffering from communicable disease until said container has been thoroughly sterilized.

IX. Spoons, dishes, glasses, or other containers used in serving ice cream must be thoroughly cleaned with washing powder or soap after each use and after cleaning must be rinsed in clean running water.

A sufficient supply of towels and cloths shall be provided and shall be kept in a cleanly condition.

Cones or other edible containers of ice cream shall be of pure materials and shall be kept covered until used.

X. The term "ice cream" as used in these regulations shall mean ice cream, sherbet, water ice or similar frozen product.

XI. Permits shall be conspicuously displayed in the rooms used for the manufacture and retail sale of ice cream.

XII. The health officer and inspectors of this board shall examine all places used in the manufacture and sale of ice cream as often as they deem necessary and shall take such samples of materials and products as they may require. Wherever the health officer shall determine that proper cleanliness is not observed, either in the place of manufacture, in the utensils, materials, or manner of making of ice cream or in the manner of carrying or selling the same, no further sales of such ice cream shall be allowed until objectionable features are removed and written permission given by him.

NEW YORK, N. Y.

Ice Cream, Frozen Flavored Water Ices, etc.—Manufacture—Importation. (Reg. Bd. of H., May 24, 1923)

[Sanitary code.] SEC. 170. *Ice cream; frozen, flavored water ices; manufacture in and bringing into the city of New York regulated.*—No ice cream, frozen flavored water ices, or other frozen products similar to ice cream or frozen flavored water ices, shall be manufactured in or brought into the city of New York for sale without a permit therefor issued by the board of health or otherwise than in accordance with the terms of said permit and with the regulations of said board.

Ice Cream—Importation or Sale Prohibited When Adulterated or Misbranded— **Definition—When Deemed Adulterated and Misbranded.** (Reg. Bd. of H., May 22, 1924)

[Sanitary code.] SEC. 177.—*Ice cream; sale of adulterated or misbranded prohibited; the terms "ice cream," "adulterated" and "misbranded" defined.*—No person shall bring into, or have, sell, or offer for sale, or exchange, or expose for sale or exchange in the city of New York, any product as and for ice cream which is adulterated or misbranded. The term "ice cream" as herein used shall be taken to mean and include the frozen product or mixture made from Pasteurized cream, milk, or product of milk, sweetened with sugar, and with or without the use of wholesome flavoring extract, food gelatin, vegetable gum, or other thickener, and which contains not less than 8 per cent, by weight, of milk (butter) fat.

Ice cream as herein defined shall be deemed adulterated—

(1) If any substance or substances has or have been mixed and packed with it so as to reduce or lower or injuriously affect its quality or strength.

(2) If any inferior or cheaper substance has been substituted wholly or in part for any of the above ingredients.

(3) If any valuable constituent of the article has been wholly or in part abstracted.

(4) If it consist wholly or in part of diseased or decomposed or putrid or rotten animal or vegetable substance.

(5) If it contain any added poisonous ingredient, or any ingredient which may render it injurious to health; or if it contain any antiseptic or preservative not evident or known to the purchaser or consumer.

(6) If it contain chrome yellow, saccharin, salts of copper, iron oxide, formaldehyde, boric acid, ochres, or other mineral substance or poisonous color or flavor, or other ingredient deleterious or detrimental to health.

(7) If it contain less than 8 per cent, by weight, of milk (butter) fat.

(8) If it contain more than 1 per cent of pure wholesome gelatin, vegetable gum, or other thickener.

(9) If it contain any added vegetable or mineral oils or fats.

Ice cream shall be deemed misbranded—

(a) If it is an imitation or offered for sale under the distinctive name of another article or is labeled or branded so as to deceive or mislead the purchaser.

(b) If in package form and the contents are stated in terms of weight or measure, such weight or measure is not plainly or correctly stated on the outside of the package.

(c) If the package or its label shall bear any statement, design, or device regarding the ingredients or the substances contained therein, which statement, design, or device shall be false or misleading in any particular.

The provisions of this section shall be deemed to apply to all mixtures or compounds such as frozen, flavored water ices sold, or offered for sale under any distinctive name: *Provided*, That cream, milk, or milk products have been added thereto and shall include all frozen products made, or sold, or offered for sale in imitation of or semblance to ice cream.

LAUNDRIES

ELIZABETH, N. J.

Laundries—Permit—Location—Employees—Sanitary Requirements. (Reg. Bd. of H., June 10, 1926)

SEC. 85. *Permit required.*—No person, corporation, or association of persons shall engage in the business or occupation of the operation of a laundry where goods or articles belonging to more than one person are treated at one time without first having obtained from the board of health for the operation of such laundry a permit; said permit shall continue [for] the term of one year beginning on the first day of June of each year [and] which will not be issued unless said board of health is satisfied after inspection with the clean and sanitary condition of the premises which must conform to the following regulations concerning laundries.

SEC. 86. *Not to be located in public hall, etc.*—It shall be unlawful to maintain or operate a public laundry or wash house in any building or portion thereof that shall be used as a public hall, store, restaurant, or lodging house, or to employ or allow to remain within said laundry or wash house any person suffering from any contagious, infectious, or loathsome disease.

SEC. 87. *Cement floor and sewer.*—No persons shall maintain or operate by mechanical apparatus any public laundry or wash house, unless the floor of the room used for washing shall be constructed of cement and drains into a public sewer.

SEC. 88. *Wash nets to be ample in size.*—Where net wash is done nets shall be of such size that their contents shall not become tightly packed so that they shall receive the proper application of disinfectant, soap, water, and heat.

SEC. 89. *Soiled and clean laundry to be kept separate.*—A separate room must be provided for the receiving and proper sorting of clean articles after washing so that contact with soiled articles is prevented. No cleaned articles shall be allowed to come in contact with containers in which soiled articles have been kept or transported.

SEC. 90. *Not within 20 feet of public buildings.*—It shall be unlawful to maintain or operate in the city of Elizabeth any public laundry or wash house the exterior walls of which are within 20 feet of any school or public building.

JERSEY CITY, N. J.

Laundries—License—Registration—Inspection—Certificate of Competency for Laundries Outside of City. (Ord. June 10, 1924)

SECTION 1. *General provision.*—It shall be unlawful for any person, firm, or corporation to conduct a laundry in the city of Jersey City, without having first obtained from the health office of said city, a license for that purpose, such license to be issued by the health officer of Jersey City, upon the payment of a fee of \$25, after approval of an application made to conduct such establishment as herein-after provided.

SEC. 2. *Laundry.*—Any place, building, structure, room, establishment, or portion thereof, which is used for the purpose of washing, drying, starching, or ironing shirts, dresses, underwear, collars, cuffs, or other wearing apparel, table, bed, or other household linens, towels, curtains, draperies, or other washable fabrics, such work being done for the general public for profit, shall be deemed a laundry and subject to the provisions of this ordinance.

The word "laundry" as used in this ordinance shall also be held to include any private laundry maintained or operated in connection with any hotel, restaurant, or public institution, except a hospital or charitable institution, where no charge is made for laundry services.

The provisions of this ordinance shall not apply to any female engaged in doing custom laundry work at her home for a regular family trade, nor to any room, rooms, or portion thereof, located in a tenement house or other dwelling, in which domestic laundry work is done by her for the occupants of such building exclusively.

SEC. 3. *Application.*—The application for a license to conduct a laundry shall be made in writing and shall state the maximum number of persons to be employed therein, the kind of laundry work to be done, a description of the premises where the work of laundering is to be done, and the number of cubic feet in the structure or rooms where such work is to be done.

SEC. 4. *Fee.*—For every license issued under the provisions of this ordinance for the establishment, maintenance, or operation of any laundry, there shall be paid to the mayor and aldermen of Jersey City by the applicant a fee of \$25 per annum. All such licenses shall expire on the first day of May of each year.

SEC. 5. *Penalty.*—Any person, firm, or corporation that shall hereafter conduct, carry on, or operate a laundry without first procuring a license so to do shall be subject to a fine of not less than \$25 nor more than \$100 for each offense, and each day or fraction of a day on which such person, firm, or corporation shall operate any such laundry without a license shall be construed as a separate and distinct offense, and any complaint made for any violation of any of the provisions of this ordinance shall be cognizable before any of the police courts of Jersey City, who shall have jurisdiction to determine such cause.

SEC. 6. *Registration.*—Every person, firm, or corporation conducting a laundry business in Jersey City shall register the name or title under or by which said business is known, together with the address where the business is carried on. If said laundry is known under a trade name there shall be registered as well the names of the individuals comprising the firm as well as their addresses, and if a corporation, the names and addresses of the directors and the agent upon whom process may be served. This provision shall apply to all laundries governed by this ordinance: *Provided*, That if the owners or operators are nonresidents of this city, all such shall name a person resident of Jersey City upon whom process may be served.

All registrations shall be made in the office of the health board of Jersey City within 30 days after the passage of this ordinance and, in case of removal, such new registration shall be made within 10 days thereafter.

SEC. 7. *Licensing board.*—All applications for a license under this ordinance shall be determined after investigation and inspection of the premises intended for use as a laundry. Such investigation and inspection shall be made by the health officer and medical inspector of the health board of Jersey City, together with one practical laundry man appointed by the board of commissioners of Jersey City, who shall serve without compensation, and this body of three shall be known as the examining and licensing board, which board is hereby created.

SEC. 8. *Inspection.*—It shall be the duty of said board to regularly inspect all licensed laundries as to the sanitary conditions prevailing therein, and such board shall have the power to recommend and order changes in any laundry establishment where conditions are not in keeping with the general sanitary requirements of the health board of Jersey City, and any failure to comply with the order of said board within a reasonable time shall be reported to the board of commissioners of Jersey City, who may revoke the license of the offending person, firm, or corporation.

SEC. 9. *Revoking of license.*—If it appears to the board of commissioners of the mayor and aldermen of Jersey City that any person, firm, or corporation conducting a laundry in Jersey City shall refuse or neglect within a reasonable time under the circumstances of the case to comply with the order of the examining and licensing board as to bettering sanitary conditions in any such laundry, the board of commissioners may, after hearing the said person, firm, or corporation, order a revocation of said license absolutely or until such time as the conditions complained of are remedied.

SEC. 10. *Display.*—All licenses granted to laundrymen shall be prominently displayed in the establishment where the work of laundering is carried on.

SEC. 11. *Nonresidents.*—Any person, firm, or corporation maintaining a laundry establishment outside of the territorial limits of Jersey City may contract to do laundry work for residents of Jersey City, but shall, in the interests of public health, be compelled to maintain the same standard of sanitary and health conditions as is required in the case of laundries maintained and operated within the territorial limits of Jersey City, and therefore shall apply to the said examining and licensing board, and the said board having made examination and investigation of such establishment, shall issue to such person, firm, or corporation, providing the sanitary conditions of such establishment are substantially the same as those required by the health rules of Jersey City, a certificate of competency to do such work, and such laundries located outside of Jersey City shall conform to and be governed by the provisions of this ordinance. Such laundries

shall not be entitled to a certificate of competency unless the establishment where such work is to be done shall be clean and sanitary; the certificate of competency when issued shall not be assignable, and may be canceled by the same procedure as is set out in this ordinance for the cancellation of a license of a resident laundryman. All such persons, firms, or corporations shall nominate and constitute a resident person upon whom process may be served for the making of complaints concerning the violation of the provisions of this ordinance.

SEC. 12. *Licenses and certificates of competency.*—Upon compliance with the provisions of this ordinance, a license shall be issued to all existing laundries in the city of Jersey City, and certificates of competency to laundries located outside of Jersey City, above mentioned, will also be issued by the health board, and a charge or fee of \$25 shall be paid for each certificate of competency issued.

SEC. 13. *Laundry signs.*—No person, firm, or corporation shall expose the sign of laundry or a sign containing similar import and meaning in Jersey City, unless such person, firm, or corporation shall first have obtained a license as herein provided.

SAN JOSE, CALIF.

Laundries—License—Sanitary Requirements—Inspection. (Ord. 2024, November 2, 1925)

SECTION 1. No person, firm, or corporation shall, within the city of San Jose, either as principal, agent, solicitor, representative, or employee take orders for laundering or washing of any article or articles of clothing, napery, blankets, bed clothing, or fabrics of any kind whatsoever, to be laundered or washed, for hire, or take orders for furnishing or supplying of any article or articles of clothing, napery, blankets, bed clothing, or fabric of any kind whatsoever, to be thereafter laundered or washed and replaced from time to time with other similar articles, for hire, or conduct or carry on a laundry business or laundry supply business, as principal, agent, solicitor, representative, or employee thereof, unless a license or permit therefor shall have first been granted such person, firm, or corporation by the council of the city of San Jose.

No such license or permit shall be issued by the council of the city of San Jose until the plant or place of laundering or washing of the laundry, or other establishment in which said person, firm, or corporation proposes to have such laundering or washing done, and such of the employees as are engaged in the washing or laundering of clothes therein, shall have been inspected by the health officer of the city of San Jose, or his duly authorized representative, under the rules and regulations of the council of the city of San Jose, and the sanitary character and cleanliness of such plant, or place of laundering, or washing, and the methods and processes employed thereat and the health of such employees and the absence of any contagious or infectious disease shall be certified to by him, to be in accordance with such rules and regulations and the health ordinances of the city of San Jose, and the health laws of the State of California.

By the term "laundry supply business," as used in this section, is meant the business of supplying to the user thereof articles of clothing, napery and other fabrics, and retaking the same for washing or laundering when soiled or used, and replacing the same with other similar articles, from time to time, for hire, when such articles so supplied consist, in whole or in part, of articles which have been theretofore used, laundered, or washed.

SEC. 2. The rules and regulations of the council of the city of San Jose shall not conflict with the rules and regulations imposed by ordinance or boards of health of other incorporated cities or towns, but shall be construed as rules and regulations imposed for the health and welfare of said city of San Jose and its inhabitants, which shall be complied with in order that said laundry business may be conducted within the city of San Jose.

SEC. 3. It shall be unlawful for any person, firm, or corporation, or association of persons to establish, maintain, operate, or carry on a public laundry, or laundry supply business within the corporate limits of the city of San Jose, in any room, or rooms, that shall be occupied or used as a restaurant, or sleeping quarters, or that is frequented by persons likely to spread infectious or contagious diseases, or that is occupied or used or frequented directly or indirectly for any immoral or unlawful purposes.

SEC. 4. It shall be unlawful for any person, firm, corporation, or association of persons conducting, maintaining, or operating a public laundry or laundry supply business within the corporate limits of the city of San Jose, to dry any article of clothing, washed in such laundry, in any room other than the one used

exclusively for drying purposes, which room must be entirely cut off from any other room, excepting that it may be connected with another room by means of a door opening thereto, in which event such door shall always be kept closed when not being used by a person entering or leaving such drying room, and said drying room, unless provided with a steam drying process, must be ventilated by the means of at least two windows, opening to the outer air, one of which windows shall be on the side opposite to another one thereof.

SEC. 5. It shall be unlawful for any person, firm or corporation, or association of persons conducting, maintaining, or operating a public laundry, or laundry supply business, within the corporate limits of the city of San Jose to wash or permit to be washed any article of clothing in any room the floor of which is not constructed of cement and drained into a public sewer, in accordance with the plumbing regulations of said city, and so set as to prevent sewer gas from entering into such room.

SEC. 6. It shall be unlawful for any person or persons, owning or employed in any laundry or laundry supply business in the city of San Jose to spray the clothing of any person or persons with water emitted from the mouth of said owner or employees.

SEC. 7. Laundries and laundry supply businesses, conducted and operated within the meaning of this article, shall at all times be kept in a clean and sanitary condition.

SEC. 8. The health officer of the city of San Jose is hereby authorized and directed to charge a fee for such inspection in accordance with a graded schedule as follows, to wit:

Where the total number of employees at the plant or place of washing, laundering, or other establishment inspected is 5 or less, \$2.

Where the total number of employees of such plant or place of washing or laundering is greater than 5 and does not exceed 10, \$3.

Where the total number of employees of such plant or place of washing or laundering is greater than 10 and does not exceed 15, \$4.

Where the total number of employees of such plant or place of washing or laundering is greater than 15 and does not exceed 20, \$5.

Where the total number of employees of such plant or place of washing or laundering is greater than 20 and does not exceed 25, \$6.

Where the total number of employees of such plant or place of washing or laundering is greater than 25 and does not exceed 30, \$7.

Where the total number of employees of such plant or place of washing or laundering is greater than 30 and does not exceed 35, \$8.

Where the total number of employees of such plant or place of washing or laundering is greater than 35 and does not exceed 40, \$9.

Where the total number of employees of such plant or place of washing or laundering is greater than 40 and does not exceed 45, \$10.

Where the total number of employees of such plant or place of washing or laundering is greater than 45 and does not exceed 50, \$11.

Thereafter, where the total number of employees of such plant or place of washing or laundering exceed 50, an additional fee of \$1 for such inspection shall be charged for each 10 employees above 50.

The health officer of the city of San Jose is also hereby authorized to charge mileage at the rate of 10 cents per mile for each mile actually traveled by him from his office in the city of San Jose to the place where an inspection is made. Said inspection is to be made at least once every month, and no such permit or license shall be issued for a longer period of time than one month: *Provided, however,* That one fee shall cover all inspections made during the month except where said inspection is made necessary by the omission, failure or neglect of the person, firm, or corporation carrying on and conducting said laundry business to comply with the rules and regulations of the council of the city of San Jose, when said fee and mileage shall be again charged.

SEC. 9. Any person, firm, or corporation violating any of the provisions of this ordinance shall be guilty of a misdemeanor and upon conviction thereof shall be punished by a fine of not more than \$500, or by imprisonment in the city prison for not more than six months or by both such fine and imprisonment.

SEC. 10. If any section, sentence, clause, or phrase of this ordinance is, for any reason, held to be unconstitutional or invalid, said decision shall not affect the validity of the remaining portion of this ordinance. The council hereby declares that it would have passed this ordinance and each section, sentence, clause, and phrase thereof irrespective of the fact that any one or some other sections, sentences, clauses, or phrases, be declared unconstitutional or invalid.

MEAT AND MEAT FOOD PRODUCTS¹

BALTIMORE, MD.

Division of Meat Inspection—Establishment—Appointment, Powers, and Duties of Inspectors. Meat and Meat Food Products—Inspection—License for and Sanitary Regulation of Slaughtering, Manufacture of Meat Food Products, etc. (Ord. 431, June 17, 1925)

SECTION 1. That there shall be in the department of health of Baltimore city, a division designated as "division of meat inspection, bureau of chemistry and food," and for the proper conduct of said division and for the purposes herein-after set forth, the commissioner of health shall appoint such number of inspectors at such salaries as may be authorized by the board of estimates of Baltimore city.

SEC. 2. That within 90 days from the approval of this ordinance, all persons, firms, or corporations engaged, or who shall thereafter become engaged in Baltimore city in slaughtering of cattle, sheep, swine, or goats, meat packing, meat canning, rendering, waste disposal, or any other business directly connected with the disposition of animal products, or sale of the same at wholesale or retail, shall apply for and obtain from the commissioner of health of Baltimore city a license, to be renewed annually, and shall pay for the same the following fees:

A. For persons, firms, and corporations slaughtering more than 2,800 head of cattle or 28,000 animals, such as calves, sheep, or hogs, including the right of manufacturing meat food products, rendering, disposal of waste, selling at wholesale or retail and engaging in all classes of meat business, a license fee of \$300 shall be charged.

B. For persons, firms, and corporations slaughtering less than 2,800 head of cattle, or 28,000 animals, such as calves, sheep, or hogs, including the right of manufacturing meat food products, rendering, disposal of waste, selling at wholesale or retail and engaging in all classes of meat business, and also jobbing and wholesaling with or without slaughtering, a license fee of \$100 shall be charged.

C. For persons, firms, and corporations selling meat or meat food products at retail, a license fee of \$1 shall be charged for each and every store so engaged.

SEC. 3. That to prevent the sale and use in the city of Baltimore of meat and meat food products which are diseased, unsound, unhealthful, unwholesome or otherwise unfit for human food, the commissioner of health, at his discretion, may cause to be made by inspectors provided for in this ordinance, an examination and inspection of all cattle, sheep, swine, and goats before they shall be allowed to enter into any slaughtering, packing, meat canning, rendering or other similar establishment in which they are to be slaughtered, and all cattle, sheep, swine, and goats found on such inspection to show symptoms of disease shall be set apart and slaughtered separately from all other cattle, sheep, swine, and goats, and when so slaughtered the carcasses of said cattle, sheep, swine, and goats shall be subjected to a careful examination and inspection and all such found to be unsound, unhealthful, unwholesome, or unfit for human food or food products shall be condemned and destroyed for food purposes by the establishment in the presence of an inspector, and all such condemned cattle shall be delivered to a licensed rendering plant; and any establishment failing to destroy and remove such condemned carcasses, or parts thereof, shall be subjected to a revocation of the license granted under the provisions of this ordinance and the inspectors may be removed therefrom by the commissioner of health.

SEC. 4. That the commissioner of health shall cause to be made, through inspectors provided for in this ordinance, a post-mortem examination and inspection of the carcasses, and parts thereof of all cattle, sheep, swine, and goats to be prepared at any slaughtering, meat canning, salting, packing, rendering, or similar establishment in Baltimore city and intended for human consumption therein,

¹ See also Food, drinks, and food establishments, p. 73.

and the carcasses, and parts thereof, of all such animals found to be sound, healthful, wholesome, and fit for human food shall be marked, stamped, tagged, or labeled "Inspected and passed," and said inspector shall label, mark, stamp, and tag as "Inspected and condemned" all carcasses, and parts thereof, of animals found to be unsound, unhealthful, unwholesome, or otherwise unfit for human food; and all carcasses, and parts thereof, thus inspected and condemned shall be destroyed for food purposes by the establishment in the presence of an inspector, and all such condemned cattle shall be delivered to a licensed rendering plant; and any establishment failing to destroy and remove such condemned carcasses, or parts thereof, shall be subjected to a revocation of the license granted under the provisions of this ordinance, and the inspectors may be removed therefrom by the commissioner of health. Whenever they may deem it necessary, after the first inspection, the inspectors may reinspect said carcasses, or parts thereof, to determine whether since the first inspection the same have become unsound, unhealthful, unwholesome, or in any way unfit for human food, and if any such upon reexamination and reinspection be found to be unsound, unhealthful, unwholesome, or in any way unfit for human food, the same shall be condemned and delivered to a licensed rendering establishment. The provisions of this section shall apply to carcasses, or parts thereof, of the animals mentioned or the meat or meat products thereof, which may be brought into any such establishment mentioned, and examination and inspection shall be made before the carcasses, or parts thereof, shall be allowed to enter into any department wherein the same are to be treated or prepared for meat food products, and shall likewise apply to such products which, after having been issued from such establishment, shall be returned thereto or any similar establishment where inspection is maintained.

SEC. 5. That the commissioner of health shall cause to be made, through inspectors provided for in this ordinance, an examination and inspection of all meat food products prepared for sale and human consumption in Baltimore city in any slaughtering, meat canning, salting, packing, rendering or similar establishment, and the inspectors herein provided for shall mark, stamp, tag, or label as "Inspected and passed" all such products found to be sound, healthful, and wholesome and which contain no dyes, chemicals, preservatives, or ingredients which render such meat food products unsound, unhealthful, unwholesome, or unfit for human food; and said inspectors shall label, mark, stamp, or tag as "Inspected and condemned" all such products found to be unsound, unhealthful, and unwholesome, or which contain dyes, chemicals, preservatives, or ingredients which render such meat food products unsound, unhealthful, unwholesome, or unfit for human food, and all such condemned meat food products shall be destroyed for food purposes by the establishment in the presence of an inspector; and any establishment failing to destroy and remove such condemned meat food products shall be subjected to a revocation of the license granted under the provisions of this ordinance, and the inspectors may be removed therefrom by the commissioner of health.

SEC. 6. That when any meat or meat food products prepared for sale or human consumption in Baltimore city and marked "Inspected and passed" shall be placed or packed in any can, pot, tin, canvas, or other receptacle or covering in any establishment where inspection under the provisions of this ordinance is required, the person, firm, or corporation preparing said products shall cause a label to be attached to said can, pot, tin, canvas, or other receptacle or covering under the supervision of an inspector, which label shall state that the contents thereof have been "Inspected and passed" under the provisions of this ordinance; but no inspection and examination of meat or meat food products deposited or enclosed in cans, tins, pots, canvas or other receptacles or coverings in any establishment where inspection under this ordinance is maintained, shall be deemed to be complete until such meat or meat food products have been sealed or enclosed in said can, tin, pot, canvas, or other receptacle or covering under the supervision of an inspector, and no such meat or meat food products shall be sold or offered for sale in Baltimore city under any false or deceptive name; but established trade name or names, which are usual to such products, and which are not false or deceptive, shall be permitted when registered with and approved by the commissioner of health.

SEC. 7. That the commissioner of health shall cause to be made from time to time by experts in sanitation, and by other competent inspectors, such inspection of all slaughtering, meat canning, salting, packing, rendering, or similar establishments in which cattle, sheep, swine, and goats are slaughtered and the meat and meat food products thereof are prepared for sale, offered for sale, or sold in the

city of Baltimore, as may be necessary to inform himself concerning the sanitary conditions of the same, and where the sanitary conditions of any establishment are such that the meat or meat food products are rendered unclean, unsound, unhealthful, unwholesome, or otherwise unfit for human food, the commissioner of health shall refuse to allow said meat or meat food products to be labeled, marked, stamped and tagged "Inspected and passed."

SEC. 8. That before any establishment, subject to the provisions of this ordinance, shall slaughter any cattle, sheep, swine, or goats, the proprietor thereof shall notify the commissioner of health so that inspectors may be present at the time of slaughtering to examine, inspect, stamp, or label the carcasses as herein provided, and all such slaughtering shall be done between the hours of 5 a. m. and 7 p. m.; unless in emergency, other hours shall be designated by the commissioner of health. If in any case it shall be impossible for the commissioner of health to have inspectors present at the time of slaughtering, an inspection service shall be provided by the establishment under the written authority of the commissioner of health as a substitute for municipal inspection, and such inspection shall in all respects conform to the inspection provided for in this ordinance; and for the effectual enforcement of all the provisions of this ordinance, the inspectors herein provided for shall have access at all times, by day or night, whether the establishment be operated or not, to every part of the establishment.

SEC. 9. That no person, firm, or corporation, or officer, agent, or employee thereof, shall forge, counterfeit, simulate, or falsely represent, or shall, without proper authority, use or detach, or shall knowingly or wrongfully alter, deface, or destroy any of the marks, stamps, tags, labels, or other identification provided to be used hereunder by the commissioner of health on any carcasses, parts of carcasses, or the food products or containers thereof, or any certificate in relation thereto, authorized by this ordinance.

SEC. 10. That the commissioner of health shall cause the inspectors herein provided for to make examination and inspection of all cattle, sheep, swine, and goats, the inspection of which is hereinbefore provided for, and of all carcasses and parts thereof and of all meats and meat food products thereof and of the sanitary condition of all establishments in which such meat or meat food products hereinbefore described are prepared, subject to the provisions of this ordinance, and the said inspectors shall refuse to stamp, mark, tag, or label any carcass or part thereof, or any meat food products therefrom prepared or offered for sale or sold in any establishment hereinbefore mentioned until the same shall have been actually inspected and found to be sound, healthful, wholesome, and fit for human food and contain no dyes, chemicals, preservatives, or ingredients which render such meat and meat food products unsound, unhealthful, unwholesome, unfit for human food, or so altered in appearance as to simulate a fresh, sound product, and have been prepared under proper sanitary conditions as hereinbefore provided for; and said inspectors shall perform such other duties as are provided for by this ordinance and as may be prescribed by the commissioner of health.

SEC. 11. That any person, firm, or corporation, or officer, agent, or employee of any person, firm, or corporation, who shall give, pay, or offer, directly or indirectly, to any inspector any money or other thing of value with intent to influence said inspector in the discharge of any duty herein provided for, shall be deemed guilty of a misdemeanor, and upon conviction thereof shall be subjected to a fine of not more than \$500 and to imprisonment in the Baltimore city jail for not more than one year; and any inspector who shall accept any money, gift, or other thing of value from any person, firm, or corporation, or officer, agent, or employee thereof, with intent to influence his official action, shall be deemed guilty of a misdemeanor, and upon conviction shall be subjected to the punishment in this section provided.

SEC. 12. That before the commissioner of health shall revoke any license issued under the provisions of this ordinance for any violation thereof, the said commissioner shall notify the applicant of the alleged violation and that an opportunity will be given him to show cause why the license should not be revoked, and said hearing shall be had on a day not less than three nor more than five days after the date of the notice of the alleged violation, and such notice of the violation and of the hearing shall be served by an inspector on the proprietor, or his or its agent in charge of the establishment, and at the hearing the commissioner shall decide the matter, and if he shall be of opinion that a violation has been proved, he shall forthwith revoke the license and such revocation shall be for such period of time as he shall stipulate, but in no event for more than one year. In the event the applicant shall not appear at the time

set for hearing, and the commissioner shall be satisfied that there has been a violation of the provisions of this ordinance, he shall pass an order in the case and notify the licensee forthwith of his action. From any adverse action of the commissioner, there shall be an appeal to the Baltimore city court, to be taken within 20 days from the date of said action, by filing a petition of appeal to the Baltimore city court praying said court to review the same, whereupon the said court shall pass an order setting such appeal for hearing and requiring the commissioner to produce in court all papers relating to the action taken from which an appeal is prayed. The jurisdiction of the Baltimore city court on appeal shall be limited to the question of the legality of the order, decision, action, or determination complained of: *Provided*, That pending the hearing of appeal, no order of revocation shall be stayed.

SEC. 13. That any person, firm, or corporation, or any officer, or agent of such person, firm, or corporation who shall violate any of the provisions of this ordinance, shall be guilty of a misdemeanor, and upon conviction shall be punished by a fine of not less than \$25 nor more than \$500, or by imprisonment in the Baltimore city jail for not more than 12 months, or to [by] both fine and imprisonment, in the discretion of the court: *Provided, however*, That operation without a license after revocation or suspension thereof shall subject the offender to a fine of \$100 for each day of such operation subsequent to said revocation or suspension, or to imprisonment in the Baltimore city jail for 60 days, in the discretion of the court.

SEC. 14. That the provisions of this ordinance, except section 2, as to procuring licenses and payment of fees, shall not apply to establishments subject to inspection, examination, and regulation by the United States Government, pursuant to the act of Congress of March 4, 1907, being chapter 2907, 34 Statutes at Large, 1260-1265: *Provided*, Inspectors appointed under this ordinance shall at all times have access to said establishments and any violations observed shall be reported to the Federal inspector in charge.

SEC. 15. That swine produced and slaughtered or any swine products prepared for market on the farm where said swine are produced by a bona fide farmer may be delivered for sale to any dealer in or consumer of such products in the city of Baltimore, and such swine or swine products shall only be subject to such regulations for inspection as shall be made by the commissioner of health to govern the slaughter and preparation for market and sale of such swine or swine products.

SEC. 16. That ordinance No. 204, approved June 16, 1924, entitled "An ordinance to prohibit the sale in Baltimore city of meat and meat products which are unfit for human consumption, and requiring all establishments that handle such meat or meat products to be licensed by the health department, prohibiting the sale of meat or meat products that have not been inspected and stamped and prescribing penalties for the violation of the provisions of this ordinance," be, and the same is hereby, repealed; and all license fees paid under said ordinance No. 204 to the commissioner of health by persons, firms, and corporations pursuant to its provisions shall be applied to the account of such persons, firms, and corporations as are obliged to secure licenses under the provisions of this ordinance, and any person, firm, or corporation having paid a license fee to the commissioner of health under said ordinance No. 204, and who or which has ceased operating his or its establishment prior to the taking effect of this ordinance, shall be entitled to have his or its fee refunded.

BAYONNE, N. J.

Markets or Places Where Live Poultry Kept for Sale or Slaughter or Both— Permit—Location, Construction, and Maintenance. (Reg. Bd. of H., December 15, 1924)

1. Every proprietor, owner, or owners, occupant or occupants of any market or place in the city of Bayonne where live poultry consisting of chickens, ducks, geese, or other fowl are kept for the purpose of sale or slaughter or both are hereby required to obtain a written permit therefor, and for the operation thereof from this board.

2. Application for such permit shall be made in writing on forms to be provided by this board, and when no previous permit shall have been granted for such market or place, such application shall be accompanied by a plan and written specifications showing the location and construction of the building to be used for the purpose or purposes aforesaid, or if no building shall have been previously erected, the proposed building to be used for the purpose or purposes aforesaid.

3. No permit to conduct such market or place will be issued unless the site and plans and specifications aforesaid shall have been first approved by this board.

4. No alteration to said market or place shall be made except upon the approval of this board, nor until the application shall be made in writing for permission to make such alterations. Such application shall be made upon forms to be provided by this board and shall be accompanied by a plan and specifications showing the proposed alterations.

5. Upon the granting of a permit to conduct a market or place as aforesaid, a fee of \$10 shall be paid to this board. On the 2d day of January, or if said 2d day of January shall be on a Sunday, then on the following day, following the granting of such permit and upon such day annually thereafter, application shall be made for a renewal thereof. Such application for renewal shall be made upon forms to be provided by this board. Upon renewal being granted, a fee of \$10 shall be paid to this board.

6. The permits aforesaid shall not be transferred by the person, firm, or corporation to whom same has been granted to any other place or site except upon the approval of this board.

7. The markets or places aforesaid shall be conducted, operated, and maintained and permits shall be granted subject to the following conditions:

(a) *Approval of site.*—An application for the approval of site and building or buildings, proposed building or buildings upon which it is proposed to establish and conduct such market or place shall be made by the owner or owners thereof upon official blank forms furnished for such purpose by the board of health. The applicant shall submit with the said application evidence of ownership, a map or sketch upon which shall appear the location and character of each building within a radius of 100 feet of the proposed site, and photographs showing the proposed site, the premises for a distance of at least 50 feet on each side thereof, and the premises on the opposite side of the proposed site for a distance of at least 100 feet, together with plans and specifications of the building or buildings erected or to be erected upon said site. Upon receipt of such application the chief health officer shall inspect or cause an inspection to be made of the proposed site and the surrounding neighborhood and prepare and forward a report with an appropriate recommendation to the board of health for its consideration and action.

(b) No application for the approval of site upon which it is proposed to establish and conduct such market or place shall be approved by the board of health in the following instances:

(1) Where the proposed site is located on Avenue C, Avenue A, or the Hudson County Boulevard.

(2) Where a church, school, library, hospital, sanatorium, or other public institution is located within 200 feet of the boundary line of the proposed site. This shall not apply to markets or places that are in existence at the time of the adoption of this ordinance.

(3) Where the proposed site, building, or buildings are not suitable or proper in the opinion of the board of health for the establishment and maintenance of such market or place.

8. *Construction of building or buildings.*—No permit or renewal shall be issued by the board of health unless the following minimum requirements as to construction shall have been in each instance fully complied with in accordance with the approved plans and specifications.

(a) The floor shall be constructed of cement, concrete, or other water-tight, nonabsorbent material so graded [graded?] and drained as to discharge all liquid matter into properly trapped sewer.

(b) Side walls and ceilings shall be of a smooth, hard, impervious material free from crevices, cracks, ledges, or projections. The junction of the side walls with the floors and ceiling shall be made with a sanitary cove base. Unless the walls and ceiling are faced with enamel tile, enamel brick, or other like material, they shall be painted with a light colored oil paint.

(c) The ceiling shall be at least 10 feet in height measured from the surface of the floor to the ceiling.

(d) A separate room [which?] is to be used exclusively for killing poultry, which shall have the area of at least 100 cubic feet, shall be provided. The width and length of this room shall not be less than 6 feet. The killing trough shall be erected of nonabsorbent material and shall discharge over a properly trapped sewer connected drain.

(e) A separate room, with an area of at least 100 cubic feet, to be used exclusively for plucking of poultry killed on the premises, shall be provided. The

width or length of this room shall not be less than 6 feet. Properly constructed boxes or receptacles of adequate size shall be provided for holding the feathers.

(f) A separate room for the storage of poultry in crates or cages shall be provided. Where permanent cages are to be used for the storage of poultry, the frames thereof shall be constructed of angle iron with strap iron bars, the floors shall be of concrete, cement, or other nonabsorbent material, and provided with permanent gutters and leaders. Cages and crates shall be elevated at least 12 inches above the floor and shall not be placed nearer than 1 foot from the side walls.

(g) Permanent equipment for furnishing an adequate supply of fresh water for flushing all parts of the premises shall be provided.

(h) A rat-proof properly constructed room or receptacle shall be provided for the storing of food for the poultry.

(i) Adequate washing and toilet facilities conveniently located shall be provided.

[No paragraph j.]

(k) All doors, windows, and other openings to the outer air shall be properly screened, or in the absence of screens, devices to be approved by the chief health officer shall be installed to keep said premises free from insects and bugs.

(l) Suitable and adequate means shall be provided for the disposal of offensive odors.

9. *Maintenance.*—[a] The building or buildings, the yard adjoining same, courts and open places connected therewith shall be at all times kept in a clean, sanitary condition, free from accumulation of refuse, garbage, and offensive material and nuisances of all kinds.

(b) All feathers and refuse material shall be disinfected and removed from the premises at least once in every 24 hours in metal receptacles or tightly closed bags provided for such purpose.

(c) All floors shall be kept and maintained in a clean, sanitary condition and in good repair and free from rubbish and offensive material. Such cleansing shall consist of the use of a disinfectant, approved by the board of health, followed by a thorough flushing of the floors with fresh water supplied through a hose connected with water-supply fixtures. Painted walls and ceilings shall be repainted whenever required by the department of health.

(d) All parts of the building or buildings shall be at all times kept properly ventilated and adequately lighted.

(e) All cages and parts thereof shall be kept in a clean and sanitary condition and shall be disinfected and flushed with fresh water at the conclusion of each day's work.

(f) All plumbing fixtures and toilet facilities shall be kept and maintained in a clean, sanitary condition and in good repair.

(g) All poultry shall be kept in good condition, healthy, and clean. Diseased or sick poultry shall be immediately removed from cages or crates and killed. Poultry which have died otherwise than by slaughter shall be immediately removed from cages or crates. All such poultry shall be denatured and placed in metallic garbage receptacles and removed from the premises daily. The finding of same on the premises shall create a presumption that such poultry is intended for sale as human food.

(h) The number of birds kept and stored shall not exceed the number approved or to be approved by this board and such birds shall not under any circumstances be kept in an overcrowded or unhealthy condition.

(i) All slaughtering shall be done exclusively in the killing room.

(j) Receptacles, appliances, and equipment approved by the board of health shall be installed in the killing room for the purpose of receiving blood, preventing unnecessary spattering of blood upon the walls, and accumulation of the same upon the floors. Such receptacles, appliances, and equipment shall be maintained in a clean and sanitary condition and all accumulation of blood removed from the premises at the conclusion of each day's work. Immediately after slaughtering, all birds shall be bled and the blood discharged in the receptacles provided for such purpose. Birds shall not be plucked in the killing room.

(k) All plucking shall be done exclusively in the plucking room.

(l) All wooden crates shall be kept and stored exclusively in the storage or selling room except where a separate room is provided for the storage of empty crates. No empty crates shall be permitted to remain outside of the building or buildings. When poultry is removed from wooden crates, the crates shall be immediately cleaned and disinfected and no such crates shall be permitted to

be removed from the premises unless they have been so cleaned and disinfected and rendered inoffensive.

(m) Poultry shall not be allowed at large upon the premises but shall be kept in cages or crates provided for such purpose.

(n) The screens, windows, doors, and other openings to the outer air shall be kept clean and in good condition and repair.

(o) Doors shall not be permitted to remain open when not in use.

(p) No offensive odors shall be permitted to escape in the outer air.

10. *Location.*—No permit shall be granted for the conducting of the markets or places referred to in this ordinance at any place in the city of Bayonne other than that within the territory bounded on the south by the south side of Twentieth Street, on the north by the south side of Twenty-third Street, on the east by the west side of Avenue C, on the west by Newark Bay.

11. *Penalties.*—In the event of any violation of this ordinance or any provision thereof, complaint may be made by this board or any officer thereof before the recorder of the city of Bayonne. Such complaint shall be in writing and shall specify the provision or provisions of this ordinance claimed to have been violated. Upon conviction of such violation, a fine shall be imposed by such recorder of \$20. This board, for any such violation, shall have the further right and privilege of revoking the permit previously granted.

12. If at any time hereafter it shall be determined by a court of competent jurisdiction that any provision or provisions of this ordinance are unconstitutional or illegal, such finding shall not affect the remaining provisions of this ordinance but such remaining portions shall remain in full force and effect.

CHICAGO, ILL.

Fresh Meat—Sale on Sunday Prohibited—Exception. (Ord. July 15, 1925)

SECTION 1. That section 2017 of Article XX of Chapter XXXIX (health) of the Chicago Municipal Code of 1922 be and the same is hereby amended by inserting a new paragraph immediately following the title of said section reading as follows:

2017. *Sanitary methods required—Sales on Sunday prohibited.*—In order to insure inspection and thereby prevent the sale of unwholesome and tainted meats, it shall be unlawful for any person, firm, or corporation to keep open, or conduct any meat market, or to expose or offer for sale therein, any fresh meats on the first day of the week, commonly called "Sunday," provided that this section shall not be applicable to persons who observe some other day of the week as the Sabbath, but that in such cases, such persons shall be required by the department of health to make suitable arrangements as to inspection.

FALL RIVER, MASS.

Sausage Factories—Construction—Sanitary Requirements—Employees—License. (Reg. Bd. of H., May 25, 1925)

SECTION 1. No factory or workshop for the manufacture of sausage shall be conducted in any cellar, or basement of any building below the level of the surrounding land or street adjoining, nor in any room of a building from which any doorway or stairway opens into or leads into any tenement, restaurant, store, or other place of business in the same or other building.

SEC. 2. Such factory or workroom shall be so constructed as to be impervious to rats, mice, and other vermin, and dogs, cats, and other domestic animals shall not be kept therein nor admitted for the purpose of destroying rats except by written permission of the board of health or its agent upon such conditions as may be stipulated therein.

SEC. 3. There shall be sufficient windows for natural light and ventilation and all doors and windows shall be effectively screened against the entrance of flies and other insects. There shall also be abundant artificial light provided to be used when it becomes necessary for work or inspection.

SEC. 4. There shall be an ample supply of pure running hot and cold water provided to meet all requirements of the plant with necessary fixtures and an adequate drainage system connected with the public sewer in the street, or if no sewer abuts the property, then with a cesspool of sufficient capacity, all constructed and maintained according to the regulations of the board of health.

SEC. 5. All walls, ceilings, partitions, posts, doors, and other parts of the structure shall be of such materials, construction, and finish as will make them sus-

ceptible of being readily cleaned and they shall be kept clean at all times. The floors shall be of cement concrete construction or other nonabsorbent material with sufficient openings connected with the sewer or cesspool to admit of its being scrubbed and flushed and this must be done every day, or oftener if necessary, to keep it in clean sanitary condition. All drain pipes shall be of the material called for by the regulations of the board of health and properly laid and trapped according thereto.

SEC. 6. A room for the smoking of sausage, if required, shall be provided, located, and operated so as not to create a nuisance or cause annoyance to residents of the locality.

SEC. 7. A refrigerator shall be provided and operated for the storage of all perishable stock and of the manufactured product.

SEC. 8. No wooden floor above the concrete floor nor the strewing of sawdust upon the latter will be permitted.

SEC. 9. All benches, receptacles, machinery, and other utensils or paraphernalia used in the conducting of the business shall be thoroughly cleansed and dried after every use daily and shall be kept scrupulously clean at all times when not in use.

SEC. 10. A closet in the workroom of sufficient size to hold the garments of all workers, not worn while at work, must be provided. All employees and others engaged in the work shall be personally clean in their habits, and shall be provided with a clean cotton or linen outer garment when starting to work every day.

SEC. 11. An approved lavatory including running hot and cold water, soap and individual towels shall be provided to insure cleanliness of all persons handling any meat product, and such persons shall carefully wash and cleanse their hands after visiting the toilet rooms or urinals before handling any meat or product or implements used in the preparation of the same.

SEC. 12. The use of tobacco in a sausage factory for smoking, chewing, or in any other form is prohibited; but cuspidors of such shape as not to be easily upset and of such material as can be readily disinfected shall be provided and used by all persons who expectorate. These must be cleansed and disinfected every day.

SEC. 13. No person suffering with any infectious or other communicable disease, dangerous to the public health, will be permitted to be employed or to work or handle meat or the manufactured sausage.

SEC. 14. A license will not be given to conduct a sausage factory unless the requirements of this regulation are complied with. Any person, firm, or corporation engaging in the business in the city of Fall River, unless so licensed, or if licensed, after having been notified by the board of health that his license has been revoked for alleged violation of said regulation and giving him an opportunity for a hearing before said board who may afterwards continue the business before the date set for such hearing shall be punished upon conviction by a fine of \$100 and such other penalties as are provided for in section 145 of chapter 94 of the general laws.

SEC. 15. This regulation shall not apply to retail dealers in chopped meat and unsmoked sausages who manufacture the same for their retail trade.

HACKENSACK, N. J.

Live Poultry Markets and Poultry Slaughterhouses—Permit—Location, Construction, and Sanitary Requirements. (Reg. Bd. of H., October 14, 1925)

That Article XVIII of the Sanitary Code of the City of Hackensack be and the same is hereby amended to read as follows:

SECTION 1. It shall be unlawful for any person, firm, or corporation to engage in the business of preparing live fowl for sale or selling live fowl or slaughtering live fowl or poultry in the city of Hackensack without having first obtained from the board of health of said city of Hackensack a permit for that purpose. Such permit may be issued by said board of health upon the payment of a fee of \$25 and said permit shall expire on the 31st day of December of each and every year, or prior thereto, if the premises licensed shall be converted to a use other than that provided for in this ordinance, or if said permit is revoked for cause. The building in which such business is conducted shall be used for the keeping, slaughtering, and sale of poultry only.

SEC. 2. Before a permit is granted the applicant shall submit to the board of health his application for the permit together with a description stating location and character of the building wherein he expects to conduct such live poultry

market or poultry slaughterhouse and in said application shall also state what building or buildings, if any, are located within a distance of 50 feet on each side of his premises.

SEC. 3. No application for a permit will be approved by the board of health where the proposed site is located within a residential district. No application for a permit will be approved by the board of health where a church, library, hospital, sanitarium, or other public institution is located within 200 feet of the boundary line to the proposed site. No application for a permit will be approved by the board of health if the proposed site is not suitable or proper in the opinion of the board of health for the establishment and maintenance of a live poultry market, or poultry slaughterhouse.

SEC. 4. No permit to conduct a live poultry market or poultry slaughterhouse will be issued by the board of health unless the premises wherein the keeping or slaughtering of the poultry is to be conducted comply with all the requirements of the rules and regulations of the State board of health and unless, in the judgment of the Hackensack board of health, the said premises or building is so located and constructed that the business of keeping or slaughtering poultry can be there conducted in a cleanly manner and without creating a nuisance.

SEC. 5. All buildings or places in which poultry slaughtering or the sale of live poultry is conducted as a business in the city of Hackensack shall conform to the following requirements:

1. Such business shall be conducted on the ground floor only.

2. The floors thereof shall be paved with material impervious to moisture and shall be properly sloped to a well trapped inlet having direct connection with a sewer. The walls of the room in which slaughtering is actually carried on shall be covered to a height of 6 feet with smooth, moisture-proof material and the remainder of the walls and ceilings shall be finished with a smooth, hard surface.

3. Plucking shall not be carried on in a room used for slaughtering. Water-tight receptacles shall be provided for all refuse and shall be properly covered and removed daily.

4. All rooms or space used for the purpose of slaughtering poultry shall be ventilated directly to the open air. No such ventilation shall in any way enter a ventilating shaft which is used in connection with the living apartments of any building.

5. All coops shall be made of heavy wire and of uniform size. All stands or counters shall be built substantially and covered with marble, slate, zinc, or tin. Stands, counters, and coops shall be raised from the floor in such a way as to permit flushing underneath the same. A plentiful supply of water shall be provided. Stands and counters for the sale of poultry shall be arranged to allow a clear passageway to the public.

6. All parts of such poultry slaughterhouses shall be at all times kept in a sanitary condition.

SEC. 6. At any time after the granting of the license or permit the board of health of the city of Hackensack may in the exercise of its judgment and after 10 days' written notice revoke said license or permit, even though the site has been previously approved by it.

SEC. 7. Any person, persons, firm, or corporation that shall violate any of the provisions of this ordinance shall, as a punishment therefor, be subjected to a penalty of not less than \$10 and not more than \$100 in the discretion of the magistrate, recorder, or justice having proper jurisdiction of the violation.

SEC. 8. All ordinances and parts of ordinances inconsistent with this ordinance be and the same are hereby repealed.

SEC. 9. This ordinance shall be in full force and effect 30 days after its first publication.

Nothing herein contained shall affect any license or permit issued by the board of health of the city of Hackensack, which license or permit has not yet expired.

JACKSON, MICH.

Meat—Inspection and Sale—Requirements Governing Slaughtering and Slaughterhouses. (Ord. August 9, 1926)

SECTION 1. Every abattoir, slaughterhouse or other place for the slaughtering of animals for the purpose of the same being used for food or of being offered for sale as food within the limits of the city of Jackson, shall be constructed and maintained in accordance with the following provisions:

(a) Every abattoir or slaughterhouse shall consist of a substantial building, well lighted, containing a killing room, a reduction plant, a chill room and a cooling room with suitable refrigerating machinery, together with suitable pens, chutes, knives, tools, cleavers, and other equipment that shall be necessary to operate the same in an efficient and sanitary manner and in such manner as shall at any time be prescribed by the rules and regulations of the board of health.

(b) The killing room shall be adequate in size; the floors shall be constructed of concrete not less than 4 inches in thickness, connected with sewer or other approved drainage by means of "bell" or "S" traps, equipped with water seals and in such manner as to secure perfect drainage. It shall be provided with hot and cold water, ample hose and tank capacity for scalding animals, runways, windlasses, overhead trackage and trolleys running from the killing room into and connected with cooling and storage rooms by which animals slaughtered can be raised, lowered, and carried from the killing room without handling; it shall be provided with sufficient tables, buckets, tubs, or other vessels in which the blood, offal and refuse shall be placed and immediately conducted to the reduction plant without the necessity of handling.

(c) The cooling room shall be of adequate size, with walls, partitions, and ceiling thoroughly insulated with approved material and so equipped that all condensation shall take place above carcasses and promptly trapped out of the building, dry refrigeration to be secured as far as possible. It shall be equipped with overhead trolleys and trackage connected with the killing room, which shall be placed at sufficient height and be of sufficient capacity to permit all animals slaughtered to be hung from the trolleys. No part of any animals slaughtered shall be placed on the floor or permitted to rest thereon and all animals and food products placed therein shall be handled as little as possible.

(d) All floors, walls, and partitions shall be constructed of brick or cement; all interior wall surfaces to be plastered smoothly with cement mortar; the ceilings shall be constructed of such material other than wood, that shall be susceptible of a high degree of sanitation and such as shall be approved by the board of health. All walls, ceilings, and partitions shall be maintained in a sanitary condition at all times.

(e) All apparatus, tools, knives, cleavers, and other utensils used in or about any abattoir, shall be regularly cleaned, kept clean and sterilized in conformity to such rules therefor as shall be established by the board of health. Towels and soap, cuspidors, and toilets shall be provided for the use of all employees and other persons working in any such building.

(f) The reduction plant shall be of adequate size and capacity. It shall be equipped with vacuum pumps, engines, machinery, and equipment sufficient to dispose, without odor, of all offal, blood, and residue from slaughtered animals. Such refuse shall be placed in suitable receptacles and immediately removed to the reduction plant.

(g) No slaughtering shall be done in barns, sheds, or other buildings not designed and not suitable for slaughtering animals and for the handling, dressing, and cooling of meats in conformity to the provisions of this ordinance; nor shall any slaughtering be done outside of a building.

(h) All slaughterhouses shall have an abundant supply of water from a well or other source which is not contaminated from the slaughterhouse or surrounding pens or enclosures, or any part of the premises, and which may be applied with adequate pressure through a hose to any part of the room or rooms used for the purpose of slaughtering or preparing meats for consumption as human food.

(i) All slaughterhouses shall have suitable floors (as hereinbefore provided) and subdrainage with proper sewer connections, which floors shall be thoroughly washed off each day after slaughtering is completed.

(j) The walls and all exposed surfaces on the inside of slaughterhouses shall be cleansed by washing and scraping as often as once in each month, and if the surfaces are not painted they shall be calcimined or whitewashed at least once a month.

(k) Cooling and store rooms for meat shall be properly ventilated.

SEC. 2. No meat intended for human food shall be sold or offered for sale within the city of Jackson unless the animal was slaughtered and prepared in a slaughterhouse or abattoir constructed and maintained according to the above requirements and every slaughterhouse operating within the city of Jackson shall be required before being permitted to operate, to take out a license as hereinafter provided. Any slaughterhouse or abattoir not located within the city of Jackson shall have the right to apply for a license upon the payment of

a license fee of \$100 per year: *Provided*, That such slaughterhouse or abattoir located outside the city of Jackson shall pay such reasonable fees as may be determined by the city commission for obtaining the services of the city inspector for the inspection of any meat intended for sale within the city of Jackson.

SEC. 3. It is expressly intended, anything in this ordinance to the contrary notwithstanding, that the requirements of this ordinance shall not apply where the animal has been slaughtered under sanitary conditions by the person who has raised the animal, or who has owned said animal at least 30 days before slaughtering for the purpose of fattening the same: *Provided, however*, That before meat from such animal shall be offered for sale within the city of Jackson that it must have the stamp of inspection and approval by the city inspector and as conditions require the city shall designate proper times and places where an inspector will be on duty for the purpose of inspecting any animals so killed and the city inspector, before placing his stamp of inspection and approval on any animal slaughtered as herein provided, may require the person desiring inspection to bring before him with the carcass such parts thereof and such of the offal as he may in his judgement deem necessary for proper inspection.

SEC. 4. All animals kept in yards attached to a slaughterhouse shall be treated in a humane manner, and if kept there over 12 hours shall be fed and watered. All pens or enclosures connected with any slaughterhouses shall be kept in proper sanitary manner.

SEC. 5. No meat from cattle, sheep, or swine shall be offered for sale as human food within the city of Jackson if such cattle, sheep, or swine when killed were in a diseased, overheated, feverish, or exhausted condition. No calf, which shall be less than 4 weeks old, no pig, which shall be less than 5 weeks old, and no lamb, which shall be less than 8 weeks old, shall be killed for human food, or same or any part thereof shall be kept or offered for sale in said city.

SEC. 5a. The owner of every abattoir or slaughterhouse situated within the city of Jackson may collect and receive fees for custom butchering not in excess of the following amounts: Hogs \$1.50 each, porkers \$1 each, sheep \$0.75 each, calves \$0.50 each; cattle not exceeding 1,200 pounds in live weight, \$1 each; cattle exceeding 1,200 pounds in live weight, \$1.50 each, and shall in addition be entitled to all offal and refuse resulting from such slaughtering.

SEC. 6. The rules and regulations of the United States governing meat inspection, as amended and issued under authority of an act of Congress, approved June 30, 1906, in regard to sanitation and ante mortem and post-mortem inspection, condemnation, and disposal of carcasses, animals, and meats unfit for human food, stamping, tagging of carcass or parts thereof inspected and found fit for food, shall be the standard applied to all acts of butchers, inspectors, and other persons, firms, or corporations engaged in the business of preparing or vending meats in the city of Jackson. The stamp of Federal inspection upon any piece of meat or carcass from which it is cut shall be prima facie evidence that the provisions of section 1 have been complied with.

SEC. 7. No person shall himself, or by another, sell, or offer or keep for sale within the city of Jackson any unsound, nauseous, or unwholesome meat, poultry, provisions, or other articles of food.

SEC. 8. An inspector of meats may be appointed by the city commission with such salary as may be prescribed by the city commission to supervise the enforcement of the provisions of this ordinance.

SEC. 9. It shall be the duty of said inspector personally to view as far as possible all meats or poultry offered or kept for sale for human food in the city of Jackson; to visit all places in the city of Jackson where animals are kept for slaughter and to inspect all animals delivered, received, or confined in such places for slaughter and to inspect all meat slaughtered for human food and to inspect and ascertain the condition of all meats so slaughtered and all of the meat offered for sale in the city of Jackson. Said inspector shall have authority and it shall be his duty to condemn, confiscate or destroy any meat or poultry sold or offered for sale in violation of this or any other ordinance of the city. And such inspector may make complaint before the proper officer for any violation of this ordinance. Such inspector shall have access at all times to places where animals are held for slaughter or where meat or poultry is being kept or intended for sale for human food and such inspector shall not be molested, hindered, or interfered with while in the performance of his duty as such inspector. Such inspector shall have the right and it shall be his duty to condemn and destroy, so that the same shall not be used for human food, any and all calves under 4 weeks old or calves which are diseased, emaciated, or otherwise unfit for human food, and all badly crippled, overheated, or diseased hogs; emaciated, diseased, or crippled

cattle; or emaciated, feeble, or crippled or overheated sheep or lambs, or any animals which for any reason are unfit for human food. It shall be the duty of such inspector to stamp his approval upon all meat slaughtered within the city of Jackson and offered for sale, such stamp shall contain suitable lettering showing that meat has either been approved or condemned.

SEC. 10. On and after September 8, 1926, no person, individual, firm, or corporation shall engage in the business of slaughtering or killing of animals intended for human food, or in the distribution or sale thereof, or in the buying and selling of any animals or parts thereof intended for human food without first obtaining the license hereinafter provided.

(a) For the operation of a slaughterhouse or abattoir, \$100, per year.

(b) For engaging in the business of buying and selling animals intended for human food in the city of Jackson, \$15.

(c) For engaging in the business of the sale of fresh meats, fish, or poultry within the city of Jackson in the ordinary and regular retail course of trade, \$10 per year.

SEC. 11. Any person violating any of the provisions of this ordinance or failing to comply with any of its requirements, shall, upon conviction, be punished by a fine not exceeding \$100 or imprisonment not exceeding 90 days or by both such fine and imprisonment, in the discretion of the court. And in addition any person violating any provision of this ordinance, who shall be a holder of any of the licenses herein provided, may be summoned before the city commission to show cause why their license should not be revoked. Any licensee so violating the provisions of this ordinance may be given five days' notice in writing by the city inspector to appear and show cause before the city commission why his license should not be revoked and if, upon said hearing, the commission shall be satisfied that such licensee has violated any of the provisions of this ordinance, they may in their discretion revoke said license absolutely or for a limited time.

SEC. 12. An ordinance relative to the slaughtering of animals intended for meat supply and to be offered for sale within the city of Jackson, being ordinance No. 115, as contained in the supplement of 1923 of the compilation of 1917, as passed June 1, 1920, is hereby repealed.

This ordinance shall take effect 30 days from the date of its passage.

MILWAUKEE, WIS.

Slaughter of Animals and Sale of Meat and Fish—License. (Ord. October 29, 1923)

SECTION 1. Sections 810 and 811 of the Milwaukee Code of 1914 are hereby amended to read as follows:

SEC. 810. No person or persons, firm, or corporation shall slaughter, sell or offer for sale, dispose of, exchange or deliver, or with intent so to do, as aforesaid, have in his or their possession, care, custody or control, meat or meat food products, or fish or fish food products, for human food, without first having been licensed so to do. Every person or persons, firm or corporation engaged in slaughtering, selling or offering for sale, exchange or delivery of meat or meat food products, or fish or fish food products, or disposing of the same in and from any store, stand, booth, market place, warehouse or any building or establishment of any kind, or in and from any wagon or other vehicle, shall pay annually on the 1st day of January a license fee of \$1. If any person or persons, firm or corporation shall commence or engage in the traffic of slaughtering or handling meat or meat food products, or fish or fish food products, at periods other than those hereinbefore mentioned, he or they shall before doing so procure the license in their case required, which license so issued, as well as other licenses and certificates herein required, shall be good for the period ending the 31st day of December following the issuance and delivery thereof. All licenses granted pursuant to this article may at any time be revoked by the commissioner of health for violation of the provisions of this article, or for good and sufficient cause. Any person or persons who shall violate or fail to comply with the provisions of this section shall be punished by a fine of not less than \$25 nor more than \$100, or by imprisonment in the house of correction of Milwaukee County for a period of not less than 30 days nor more than 90 days or both, in the discretion of the court.

SEC. 811. Licenses shall be issued in the name of the applicant therefor. Before the issuance of the license, every person or corporation engaged in slaughtering and selling of meat or meat food products, or fish or fish food products, shall

make written application therefor on a printed form, provided for that purpose by the commissioner of health, on which shall be stated first, the name or names in full, and residence, and location of the place or places of business of the applicant; if a corporation, the names of the officers and managers shall be given in full; second, if after the issuance and delivery of the license any change be made in the location of the place of business of such licensee, notice thereof must be forthwith given to the commissioner of health. All persons licensed under these sections shall immediately post his or their license or licenses upon some conspicuous part of the room or offices in which the business is carried on, and same shall remain posted.

NEW YORK, N. Y.

Sausage and Sausage Meat—Importation or Sale Prohibited when Adulterated or Misbranded—When Deemed Adulterated and Misbranded. (Reg. Bd. of H., February 8, 1923)

[Sanitary code.] SEC. 139-a. *Sausage or sausage meat; sale of adulterated or misbranded prohibited; the terms "sausage" or "sausage meat," "adulterated" or "misbranded" defined.*—No sausage or sausage meat that is adulterated or misbranded shall be brought into, or held, kept, offered for sale, or sold in the city of New York. The term "sausage" or "sausage meat" as used herein shall include every product made or prepared from the finely cut, chopped, or ground edible portions of cattle, or swine, or both, whether in the raw, fresh, salted, pickled, cooked, or smoked state, with or without the addition of salt, spices, condiments, animal fats, blood, and sugar.

Sausage or sausage meat shall be deemed to be adulterated:

- (1) If it contain any cereal.
- (2) If it contain any added coloring matter.
- (3) If it contain an excess amount of water.
- (4) If any diseased or decomposed or putrid or rotten animal or vegetable substance or any lungs or cows' udders enter into its composition or be found therein.
- (5) If it contain any antiseptic or preservative other than salt, sugar, wood smoke, cider vinegar, wine vinegar, malt vinegar, sugar vinegar, glucose vinegar, pure spices, saltpeter, or nitrate of soda.

Sausage or sausage meat shall be deemed to be misbranded if it be labeled or branded so as to deceive or mislead the purchaser.

Sausage and Sausage Meat—Must Conform to Sanitary Code Definition. (Res. Bd. of H., February 8, 1923)

Resolved, That the regulations governing the conduct and maintenance and operation of sausage manufactories and establishments used for smoking and preserving meat or fish, and relating to section 330 of the Sanitary Code, be and the same are hereby amended, and the first paragraph of same made to read as follows:

Any meat or meat products sold under the name of sausage or sausage meat shall correspond to the definition contained in section 139-a of the Sanitary Code, adopted by the board of health on the 8th day of February, 1923, effective on the 9th day of February, 1923.

Resolved, That regulation 18, of the regulations governing the conduct and maintenance and operation of sausage manufactories and establishments used for smoking and preserving meat or fish, be and the same is hereby revoked and annulled.

Meat—Importation of Carcasses of Animals. (Reg. Bd. of H., August 10, 1926)

[Sanitary Code] SEC. 172. *Bringing into the city of New York of the carcasses of certain animals restricted.*—No carcasses, or parts of the carcasses, of cows, bulls, steers, or swine shall be brought into the city of New York until they shall, respectively, have been inspected and passed as fit for human food by a duly authorized inspection of the United States Government, or of any State or municipality, and shall have been marked, stamped, branded, tagged or labelled as having been so inspected and passed: *Provided, however*, The provisions of this section shall not apply to the carcasses of cows, bulls, steers, calves, lambs, goats, or swine to which are attached, by their natural connections, the head including the tongue, the lungs, the liver, the heart, the spleen, the pleura, and the peritoneum and all the body lymph glands.

Live Stock and Poultry—Slaughter. (Reg. Bd. of H., March 20, 1924)

[Sanitary Code] SEC. 325. *The slaughter of cattle, sheep, goats, pigs, calves, and poultry regulated.*—The slaughter of cattle, sheep, goats, pigs, calves, or poultry shall not be conducted in the city of New York without a permit therefor issued by the board of health, or otherwise than in accordance with the terms of said permit and with the regulations of said board.

Poultry—Sale. (Res. Bd. of H., July 24, 1923)

Resolved, That the regulations governing the sale of live poultry, and relating to section 19 of the Sanitary Code, be and the same are hereby amended by the adoption of two new regulations to be known as regulations 13 and 14, to read as follows:

REG. 13. *Not to be sold except to those holding permits to handle.*—No live poultry, in crate lots, shall be sold to any person unless such person is authorized to handle and deal in live poultry by permit granted for that purpose by the board of health.

REG. 14. *No overcropped poultry or poultry dying by other than slaughter to be kept, etc.*—No poultry which is overcropped or which has died other than by slaughter shall be brought into the city of New York, or be held, kept, sold, or offered for sale therein.

Live Poultry—Inspection. (Reg. Bd. of H., October 19, 1926)

[Regulations governing the keeping of live poultry.] REG. 15. *Live poultry; inspection required.*—No live poultry shall be brought into the city of New York or unloaded from live poultry cars until properly inspected and passed as to crop and health conditions. Such examination and inspection shall be made by a duly licensed veterinarian or other competent persons in the employ of the consignee or owner of the said live poultry. The qualification and fitness of the persons employed to examine and inspect live poultry as to crop and health conditions shall in each instance be approved by the director of the bureau of food and drugs.

REG. 16. *Written report as to condition of live poultry required to be filed daily.*—A report as to the crop and health conditions of all live poultry received in the city of New York shall be made in writing by the person authorized to make such examination and inspection, and such report shall be submitted daily to the bureau of food and drugs upon forms approved by the health department. The health department shall have the right in each instance to cause a reinspection to be made of the crop and health condition of all live poultry sold or offered for sale or brought into the city of New York for sale. No overfed live poultry shall be permitted to be brought into the city of New York. Live poultry with a crop of more than 2 ounces shall be deemed to be overcropped.

Poultry Slaughterhouses—Permit—Location, Construction, Maintenance, and Operation. (Reg. Bd. of H., July 24, 1924, and July 30, 1925)

[Regulations governing the conduct of poultry slaughterhouses.] REGULATION 1. *Approval of site, of plans and specifications; issuance of permits.*—No permit to conduct a poultry slaughterhouse shall be issued by the board of health unless the site and the plans and specifications of the proposed poultry slaughterhouse shall have been approved by the said board.

REG. 2. *Approval of site.*—(a) Application; an application for the approval of site for a poultry slaughterhouse shall be made to the department of health by the owner of the site, upon official blanks furnished for that purpose by the said department.

The applicant must file with the said application—

(b) Proof of ownership of the site.

(c) Map or sketch, drawn on cloth, to a scale of 50 feet to the inch, showing all premises within 200 feet of the boundary lines of the proposed site, the lot and street numbers and dimensions thereof, and the character of buildings, if any, thereon, and also the points of the compass.

(d) Photographs, not less than 5 inches by 7 inches in size, of the proposed site and the premises within 80 feet on each side thereof, and similar photographs showing the premises, for a distance of 100 feet, across the street from and directly opposite the proposed site.

(e) A list of the names and addresses of the record owners of all property within the 200-foot area as laid out on the said map.

REG. 3. Location of site.—(a) The following conditions must be complied with before an application for approval of site will be considered.

(b) Such site must be located in an unrestricted district as provided for on the use district map and in the use district designations and map designation rules accompanying said maps, as adopted by the board of estimate and apportionment of the city of New York.

(c) Such site must be located at least 200 feet distant from any structure used exclusively as a church, school, library, hospital, or other public institution.

(d) Such site must be at least 80 feet from any tenement house.

(e) Such site must be so located that at least 50 per cent of the area within a radius of 200 feet thereof shall be used for other than residential or dwelling purposes.

(f) Such site must be at least 50 feet distant from any building in which food is manufactured.

(g) Such site must be located at least 50 feet distant from every building wherein 10 or more persons are regularly employed in a use which is permitted in a business district, as established by the zone resolution of the board of estimate.

(h) Such site must cover an area of not less than 1,500 square feet.

REG. 4. Hearing.—If any of the property within the 200-foot area of the proposed site shall be located in a business or residential district, the owners thereof may be notified in writing of the application for the approval of the proposed site for a poultry slaughterhouse, and that they will be afforded an opportunity to appear at a meeting at the time and place stated for the consideration of such application. The applicant shall also be notified of such meeting and be permitted to attend. Such hearing shall be held by a representative of the department of health who shall be duly designated by the board of health.

REG. 5. Discretion of the board.—No such site shall be approved, however, when in the sound discretion of the board of health the conduct or maintenance of a poultry slaughterhouse would be dangerous or detrimental to the health of those living or employed in the vicinity thereof, or which would or might tend to create a nuisance.

REG. 6. Plans and specifications.—Upon the approval of a site by the board of health, application for the approval of the plans and specifications of the poultry slaughterhouse proposed to be erected shall be made upon official forms furnished by the board of health and a copy of such plans and specifications shall be submitted with such application.

REG. 7. Permit.—The application for the permit to conduct a poultry slaughterhouse shall be made upon official forms furnished by the department of health. No permit will be issued unless the site and plans and specifications of the proposed poultry slaughterhouse shall have first been approved by the said board in accordance with the provisions of these regulations.

REG. 8. Application to be made to the board of health.—Application for the approval of site and plans and specifications and for permits shall be made to the board of health.

REG. 9. Construction of poultry slaughterhouse.—No permit to conduct a poultry slaughterhouse will be issued by the board of health unless the following minimum requirements as to construction shall have been in each instance fully complied with in accordance with the approved plans and specifications.

(a) *Floors; construction.*—The floors shall be constructed of cement, concrete, or other water-tight nonabsorbent material so graded and drained as to discharge all liquid matter into properly trapped sewer or cesspool connected drains.

(b) *Ceilings.*—The ceilings shall be of a smooth, hard, impervious material free from crevices, cracks, ledges or projections. The junction of the side walls with floors and ceilings shall be made with a sanitary cove base. Unless the walls and ceilings are faced with enamel tile, enamel brick, or other like material, they shall be painted whenever required by the board of health.

(c) *Height of ceiling.*—All ceilings shall be at least 10 feet in height measured from the surface of the floor to the said ceiling.

(d) *Ventilation.*—Adequate ventilation to the external air by natural or mechanical means shall be furnished for every room in which poultry is stored, killed, or which is used in connection with the slaughterhouse.

(e) *Lights.*—Adequate natural or artificial light shall be provided in every room in which poultry is stored or killed.

(f) *Killing room.*—A separate room shall be provided which shall be used exclusively as a killing room, which shall have an area of at least 100 square feet, the side walls of which shall be faced with enamel brick. The width or length of

this room shall not be less than 6 feet. Where a killing trough is provided, it shall be constructed of nonabsorbent material and shall discharge over properly trapped and connected drains. The provisions of this regulation shall not apply to poultry slaughterhouses in which a wholesale business is carried on exclusively.

(g) *Plucking room.*—A separate room shall be provided which shall be used exclusively for the plucking of poultry killed on the premises. The area of this room shall be at least 100 square feet. The width or length of this room shall not be less than 6 feet, and the side walls shall be faced with enamel brick. Proper receptacles shall be provided for the holding, storage, or keeping of all feathers. The provisions of this regulation shall not apply to poultry slaughterhouses in which a wholesale business is carried on exclusively, nor where, in the opinion of the board of health, dry plucking is not done.

(h) *Storage; crates or cages.*—A separate room shall be provided for the storage of poultry in crates or cages. Where permanent cages are used, the frames thereof shall be constructed of angle iron with strap iron bars, the floors shall be constructed of concrete, cement, or other nonabsorbent material and provided with permanent gutters and leaders. Cages or crates shall be elevated at least 1 foot above the floor level and shall not be placed nearer than 2 feet from the side walls of the building.

(i) *Water supply.*—Permanent fixtures shall be provided for the furnishing of an adequate supply of fresh water for flushing all parts of the premises.

(j) *Rat proofing.*—The room or receptacle for the storage of food for the poultry shall be constructed rat proof.

(k) *Toilet facilities.*—An adequate washing and toilet room shall be provided.

(l) *Screening.*—All doors, windows, and other openings to the outer air shall be properly and adequately screened. All doors shall be equipped with self-closing devices.

(m) *Hot water.*—Adequate facilities shall be provided to insure a sufficient supply of running hot water at all times.

(n) *Odors.*—Suitable and adequate means shall be provided for the disposal of offensive odors.

REG. 10. *Maintenance.*—Every poultry slaughterhouse shall be conducted in strict compliance with the following rules which shall govern the maintenance and operation thereof.

(a) *Cleanliness.*—Every poultry slaughterhouse, the yard adjoining same and all air shafts, courts and open places connected therewith, shall be at all times kept in a clean, sanitary condition, free from accumulations of refuse, garbage and offensive material, and nuisances of all kinds.

(b) *Feathers and refuse material.*—All feathers and refuse material shall be disinfected and removed from the premises at least once in every 24 hours in metal receptacles which shall be provided with tight-fitting covers, kept closed when not in use, and cleaned and disinfected daily.

(c) *Floors; washing.*—All floors shall be kept and maintained in a clean, sanitary condition and in good repair and free from rubbish and offensive material. Such cleansing shall consist of the use of disinfectant, approved by the department of health, followed by a thorough flushing of the floors with fresh water supplied through a hose connected with water supply fixtures.

(d) *Walls, cleaning.*—The side walls of all rooms used for the storage, killing, or sale of poultry shall be kept in a clean, sanitary condition and in good repair and shall be washed at the conclusion of each day's work with a disinfecting solution and thereafter flushed with clean water supplied by means of a hose attached to water-supply fixtures. Walls and ceilings shall be painted whenever required by the department of health.

(e) *Ventilation.*—All parts of every poultry slaughterhouse shall be kept properly ventilated and adequately lighted at all times.

(f) *Cages or crates; disinfection.*—All cages or crates and parts thereof shall be kept in a sanitary condition and shall be thoroughly cleaned, disinfected, and flushed with fresh water at the conclusion of each day's work.

(g) *Plumbing.*—All plumbing fixtures and toilet facilities shall be kept and maintained in a clean, sanitary condition and in good repair.

(h) *Poultry condition.*—All poultry shall be kept in good condition, healthy, and clean. Diseased or sick poultry shall be immediately removed from cages or crates and killed. Any poultry that has died otherwise than by slaughter shall be immediately removed from cages or crates, denatured and placed in metallic garbage receptacles and removed from the premises daily, and, in addition, any poultry that has been slaughtered and which has deteriorated and be-

come unfit for human consumption, or such as may have been returned by customers, shall not be kept on the premises unless such poultry be similarly denatured and disposed of in metal receptacles and removed from the premises daily. Failure to denature and render such poultry unfit for human food and the keeping of the same on the premises shall create a presumption that such poultry is intended for sale as human food.

(i) *Overcrowding.*—The quantity of poultry that may be kept and stored shall not exceed the approved capacity of the poultry slaughterhouse and such poultry shall not under any circumstances be kept in an overcrowded or unhealthy condition.

(j) *Killing room.*—Slaughtering shall not be done in any other place on the premises except in the killing room.

(k) *Receptacles.*—Only such receptacles, appliances, and equipment as are approved by the department of health shall be installed in the killing room for the purpose of receiving blood, preventing the spattering of blood upon the walls and accumulation of the same upon the floors. Such receptacles, appliances, and equipment shall be maintained in a clean and sanitary condition and all accumulation of blood removed from same at the conclusion of each day's work. Immediately after slaughter all poultry shall be bled and the blood discharged into the receptacles provided for such purpose.

(l) *Plucking room.*—All plucking of poultry shall be done exclusively in the plucking room.

(m) *Feather receptacles.*—Plucking of poultry shall be performed in such manner that all feathers shall be thrown or placed in the receptacles provided for such purpose.

(n) *Disinfectant.*—All refuse material including feathers shall be disinfected at regular intervals during each day. The disinfectant used for such purpose shall be approved by the department of health and an adequate supply thereof shall at all times be kept on the premises.

(o) *Storage of crates.*—All crates shall be kept and stored exclusively in the storage or selling room except where a separate room is provided for the storage of empty crates. No empty crates shall be kept or permitted to remain outside of the poultry slaughterhouse. When fowl have been removed from wooden crates, all excrement shall be immediately removed from the floors and the crates cleaned and disinfected and no empty crates shall be permitted to be removed from the premises unless all excrement has been removed from the floors and the said crates thoroughly cleaned, disinfected, and rendered inoffensive; nor shall any person receive or have in his possession, any empty crates from which fowl have been removed, unless said crates have been thoroughly cleaned as herein required.

(p) *Poultry at large; prohibited.*—No poultry shall be allowed or permitted at large upon the premises, but shall be kept at all times in the cages or crates provided for such purpose.

(q) *Screens.*—The screens, windows, doors, and other openings to the outer air shall be kept clean and in good condition and repair.

(r) *Doors not to be left open.*—Doors shall not be permitted to remain open except for ingress or egress.

(s) *Offensive odors.*—Offensive odors shall not be permitted to escape into the outer air.

(t) *Overcropped poultry.*—Overcropped poultry shall not be offered or displayed for sale or sold. Such poultry shall be kept separate and apart from poultry held for sale.

REG. 11. *Structural changes.*—No structural change or alteration shall be made in any poultry slaughterhouse building unless the same shall have first been approved or ordered by the board of health.

REG. 12. *Poultry slaughterhouse not to be used for any other purpose.*—No building in which a poultry slaughterhouse is located shall be used for any other purpose except for the slaughter, storage, and sale of poultry.

REG. 13. *Change of environment.*—Whenever, in the opinion of the board of health, the environment has changed since granting the permit to conduct a poultry slaughterhouse to such an extent that the maintenance thereof may constitute a nuisance, such permit may be revoked by the board of health even though the site had been previously approved.

REG. 14. *Permits must be renewed annually.*—Permits granted by the board of health shall expire on the last day of the year of issuance and shall be renewed annually.

RICHMOND, VA.

Meat and Meat Products—Inspection—Permit for Slaughterhouses—Making of Regulations by Board of Health. (Ord. July 17, 1923)

1. That no person, firm, or corporation shall transport through the streets of the city of Richmond, except as hereinafter provided, sell or offer for sale, or have in his possession with intent to sell or offer for sale, any fresh meat either as an entire carcass, part of a carcass, fresh sausage, or other fresh prepared meat product, unless such meat shall have been officially inspected and approved by an officer of the Bureau of Animal Industry of the United States Department of Agriculture; or unless it shall have been slaughtered in a slaughterhouse holding a permit issued by the city health bureau and shall have been inspected and approved by an officer of the said bureau. No permit to slaughter animals, the meat from which is to be sold in Richmond, shall be granted the owner of any slaughterhouse unless said slaughterhouse complies with the rules and regulations governing same, which rules and regulations the board of health is hereby authorized and directed to adopt and promulgate; and any such permit, when granted, may be suspended or revoked by the health officer at any time for violation of any of the said rules and regulations.

2. The said board of health is hereby further authorized and directed to adopt and promulgate rules governing the methods of slaughtering animals, the condemnation and destruction of meat from diseased animals, and the methods of handling meat during its transportation and exposure for sale in the city of Richmond, and also covering such other points as may be deemed necessary for carrying out the provisions of this ordinance and not in conflict therewith.

3. Any farmer who wishes to sell within the city of Richmond any fresh meat of any animal raised by himself and slaughtered on his farm may do so at any time during the period commencing on the 20th day of November of any year and continuing through the last day of February of the succeeding year; but no portion of such meat shall be offered for sale in the city of Richmond until after same has been inspected and approved in accordance with regulations to be adopted by the board of health of the city of Richmond.

* * * * *

5. Any person, firm, or corporation violating any section of this ordinance, or any regulation which may be adopted by the board of health in conformity therewith, shall be liable to a fine of not less than \$10 nor more than \$100, recoverable before the police justice of the city of Richmond.

Slaughterhouses—Construction, Maintenance, and Operation. Animals—Slaughter—Inspection of Carcasses. (Reg. Bd. of H., August 24, 1923)

1. All yards, driveways, alleys, and pens connected with any slaughterhouse shall be smooth and properly graded and drained. They shall at all times be kept clean. Whenever the chief meat inspector considers it necessary, the surfaces of all alleys, pens, and driveways adjacent to a slaughterhouse shall be covered with an impervious material.

2. The floors of all killing rooms and of all storage and other rooms where edible meat is handled or stored shall be of concrete, or its equivalent, and so constructed as to drain freely and thoroughly into traps connected with a satisfactory drain. The walls and ceilings of all such rooms shall be tight and smooth, and shall be of such material that they may be easily cleaned. They shall be painted or whitewashed as often as necessary to keep them in a neat condition, and shall be kept clean at all times.

3. Every slaughterhouse shall have adequate and satisfactory reduction equipment for the disposal of all offal and condemned meat, which equipment shall be outside of any room in which edible meat is handled, and the reduction shall be thoroughly and inoffensively conducted.

4. All parts of the slaughterhouse shall be adequately lighted, both naturally—by a sufficient number of windows—and artificially. The ventilation shall be sufficient to keep down offensive odors. All rooms shall be equipped with self-closing, properly fitting, screen doors, which shall be kept closed at all times. These rooms shall be equipped with the necessary overhead trackage, hoists, trucks, racks, tables, and other necessary equipment to conduct the business in an expeditious and cleanly manner. Suitable spittoons shall be provided for the workmen, and no workman shall spit upon the floor or sidewalls of any slaughterhouse.

5. Properly equipped dressing rooms and toilet rooms, sufficient in number, ample in size, conveniently located, provided with windows to admit direct, natural light, properly ventilated, and meeting all requirements as to sanitary construction and equipment, shall be provided. These shall be separate from the rooms and compartments in which meat and products are prepared, stored, or handled.

6. Ample, modern lavatory accommodations, including running hot and cold water, soap, towels, etc., shall be provided in such locations as may be essential to insure cleanliness of all persons handling any meat or product, and there shall be at least one lavatory convenient to each toilet room and urinal.

7. An abundant supply of safe water shall be provided, which shall be delivered under pressure to all parts of the plant. Provision shall also be made for an adequate supply of hot water, delivered in pipes to the necessary places in the slaughterhouse.

8. All buildings in which meat or meat products are handled and stored shall be rat proofed.

9. No room used for slaughtering shall be used for any other purposes, incompatible therewith.

10. All employees in slaughterhouses shall be provided with washable clothing and boots (or shoes) for use on the killing floor. Such boots and clothing shall be kept clean at all times.

11. Before going upon the killing floor, employees shall thoroughly wash their hands. The hands shall also be washed after each visit to the toilet, and at such other intervals as may be required.

12. No person shall be employed at a slaughter house while afflicted with any communicable disease.

13. No dog shall be allowed in or around any slaughterhouse.

14. The floor and side walls of the slaughtering room shall be properly washed at the end of each day's killing, and the floors, trucks, and all other surfaces of the plant shall be washed and scrubbed as often as is necessary to keep them in a clean condition.

15. Carcasses shall not be dressed with skewers, knives, etc., that have been held in the mouth. Spitting on whetstones or steels while sharpening knives is prohibited.

16. Meat which has been dropped upon the floor or otherwise becomes contaminated shall not be removed from the plant until trimmed or cleaned in a manner satisfactory to the inspector in charge.

17. Neither carcasses nor parts of carcasses shall be inflated with air from the mouth, and no inflation except by mechanical means shall be allowed.

18. A suitable, adequate, well-lighted space shall be provided upon the floor of the killing room for the meat inspector. Suitable tables, benches, and other equipment on which inspection is performed shall be furnished by each plant. A suitable locker shall also be provided in which the meat inspector may store his equipment and clothing.

19. No animal shall be slaughtered until it has been passed upon by the inspector in charge of the plant.

20. Where possible, all animals shall be inspected during the time of slaughter. If it is necessary that any animal be slaughtered when the inspector is not present, the heart, lungs, and liver shall remain in place until after inspection. The head and intestines shall be kept so that they may be identified with the carcass.

21. Provision shall be made for holding carcasses, when further inspection is necessary. Such carcasses shall remain in the custody of the inspector until a final decision as to their disposal has been reached.

22. No meat shall be removed from the slaughterhouse unless it has been passed on by the inspector and appropriately stamped by him.

23. No animal which had died as a result of disease or accident or which is in a dying condition or apparently diseased, shall be brought into any room where edible meat is handled. The meat inspector shall condemn all meats and meat products which, in his opinion, are so affected with disease as to be dangerous for use as human food, and also any meat or meat products which are contaminated, putrid, unsound, immature, or otherwise unfit for human food. Such condemned meat shall be stamped "Richmond Health Bureau, inspected and condemned." Any meat so condemned shall be immediately tanked or otherwise destroyed.

24. In his methods of post-mortem examinations and in his decisions as to the disposal of carcasses and parts, the meat inspector shall, so far as applicable, follow regulations 10 and 11 of B. A. I. Order 211 (revised), as adopted by the

Bureau of Animal Industry, United States Department of Agriculture, and made effective on November 1, 1922.

25. All trucks, knives, receptacles, and surfaces which may have been contaminated by any condemned part of any animal shall be properly cleaned and disinfected before further use. All condemned carcasses and all condemned parts of carcasses shall be handled on trucks other than those used for handling nondiseased meat. The hands of the butcher who has dressed or handled a diseased carcass shall be cleaned of all grease and shall then be immersed in a prescribed disinfectant and rinsed in clear water before dressing another carcass.

26. No carcass shall be stamped by any person without official authority.

27. All offal shall be cared for in a separate room and shall be disposed of either by tanking or in other manner satisfactory to the chief meat inspector.

28. No one shall interfere in any manner with the meat inspector while on duty.

29. A sufficient number of persons shall be provided in all slaughterhouses to carry on the slaughtering in an expeditious manner. All killing shall be done between the hours of 7 a. m. and 5 p. m., but arrangements for inspection shall be, in every instance, made with the chief meat inspector on the day preceding that on which the killing is to be conducted.

30. All carcasses shall within five hours after slaughter be placed in suitable refrigeration and shall be kept in such room at least 12 hours before being offered for sale.

31. The bodies of all vehicles in which meat is transported from the slaughterhouse shall be cleaned before each use, and all meats or carcasses shall be properly protected from dust and flies at all times. Nothing liable to contaminate the meat shall be hauled on the same vehicle.

SEATTLE, WASH.

Meat—Inspection and Sale—Inspection and Slaughter of Animals—Construction, Maintenance, and Operation of Slaughterhouses. (Ord. 48711, April 22, 1925)

SECTION 1. The word "inspector" wherever used in this ordinance shall be held and construed to mean and include the commissioner of health and any of his subordinates by him in writing detailed as meat inspectors of the department of sanitation.

The word "person" wherever used in this ordinance shall be held and construed to mean and include an individual of either sex, or an association, co-partnership, or corporation, whether acting by themselves or by a servant, agent, or employee; the singular number shall be held and construed to include the plural, and the masculine pronoun to include the feminine.

The word "shop" wherever used in this ordinance shall be held and construed to mean and include any building, or any part thereof, used for the sale of meat, poultry, or game.

The word "plant" wherever used in this ordinance shall be held and construed to mean and include any abattoir, slaughterhouse, canning, salting, packing, or rendering establishment.

SEC. 2. It shall be unlawful for any person to sell, offer for sale, or expose for sale, the meat of of any animal (except poultry or game) intended for human consumption in the city, unless the same has been inspected, ante-mortem and post-mortem, and passed and approved by an inspector, or unless such meat bears the stamp mark or tag indication of inspection by the Bureau of Animal Industry of the Department of Agriculture of the United States, or the Department of Agriculture of the State of Washington, or any city of the State of Washington, so long as the inspection of such meat is made by said bureau, department, or city under regulations like those contained herein: *Provided, however, That calves less than 6 months of age, and sheep and goats may be killed without such ante mortem inspection: And provided further, That this section shall not be construed to prohibit producers residing beyond the limits of the city from killing such animals and selling the same within the city, but no such animals, or parts thereof, shall be sold until the same shall have been inspected by an inspector in such places and at such hours as may be approved by the commissioner of health.*

SEC. 3. For the purpose of defraying the cost and expense of the inspection of carcasses required by this ordinance, the commissioner of health is authorized

to charge and collect such inspection fee as in his judgment is necessary to reimburse the city of Seattle for such service, not exceeding the following: Cattle, 25 cents per head; calves, hogs, sheep and goats, 10 cents per head.

Said fee shall be paid to the inspector at the time of inspection, and all moneys so paid shall be turned over by the inspector to the city treasurer daily.

SEC. 4. It shall be the duty of the owner to cause an ante mortem inspection of all animals intended for slaughter within the city and designed for human consumption, immediately upon their arrival at public or private stockyards, or docks in the city, and it shall be unlawful for such owner to fail or neglect to comply with this provision.

SEC. 5. All animals found upon ante mortem inspection to be affected with any of the following diseases or conditions:—

- (a) Hog cholera;
- (b) Swine plague;
- (c) Anthrax or charbon;
- (d) Rabies;
- (e) Malignant epizootic catarrh;
- (f) Pyemia and septicemia;
- (g) Mange or scab;
- (h) Actinomycosis or lumpy jaw;
- (i) Pneumonia, pleurisy, enteritis, peritonitis and metritis;
- (j) Texas fever;
- (k) Tuberculosis;
- (l) Hemorrhagic septicemia;
- (m) Blackleg;
- (n) Foot and mouth disease;
- (o) Animals in an advanced stage of pregnancy (showing signs of preparation for parturition) or which have recently given birth to young;
- (p) Any disease or condition which, causing an elevation of temperature, or affecting the system of the animal, will make the flesh unfit for human food;
- (q) Animals too young and immature to produce wholesome meat; calves, lambs or pigs, under 4 weeks of age;
- (r) Animals too emaciated and anemic to produce wholesome meat;
- (s) Animals which are badly bruised, injured or show tumors, abscesses, or suppurating sores;

shall be condemned and marked by the inspector, and such condemned animals shall be removed by the owner forthwith from the pens containing animals which have been inspected and found to be free from said diseases and conditions, and shall be disposed of under the direction of said inspector in the manner provided by State law, and in respect to such cases as are not covered by State law, shall be properly denatured or be destroyed by fire.

When animals so condemned are taken to a plant in the city for slaughter, before such disposition and destruction they shall be accompanied by a permit signed by said inspector. This permit shall, upon the arrival of said animals at the plant, be delivered to the inspector on post-mortem duty thereat, and said animals shall be identified to said inspector, on the killing floor by an employee of said plant, immediately after killing and before any other disposition is made thereof. It shall be unlawful for any person to fail or neglect to comply with the provisions hereof.

SEC. 6. An inspector shall carefully inspect the carcasses of all animals slaughtered within the limits of the city, and excepting those slaughtered at a plant at which is stationed an inspector acting under the instructions of the Bureau of Animal Industry of the Department of Agriculture of the United States, or the Department of Agriculture of the State of Washington, or of any city in the State of Washington, so long as the inspection of such meat is made by said bureau, department, or city under regulations like those contained herein. It shall be the duty of the persons slaughtering the same to retain the head and the entire viscera of the animal in such manner as to preserve identity until after the post-mortem inspection shall have been completed. All carcasses of animals found upon post-mortem examinations to be affected with any of the following diseases or conditions—

- (a) Hog cholera;
- (b) Swine plague;
- (c) Anthrax or charbon;
- (d) Rabies;
- (e) Malignant epizootic catarrh;

- (f) Pyemia and septicemia;
- (g) Mange or scab;
- (h) Actinomycosis or lumpy jaw;
- (i) Pneumonia, pleurisy, enteritis, peritonitis, and metritis;
- (j) Texas fever;
- (k) Tuberculosis;
- (l) Hemorrhagic septicemia;
- (m) Blackleg;
- (n) Foot and mouth disease;
- (o) Animals in an advanced stage of pregnancy (showing signs of preparation for parturition) or which have recently given birth to young;
- (p) Any disease or condition which, causing an elevation of temperature, or affecting the system of the animal, will make the flesh unfit for human food;
- (q) Animals too young and immature to produce wholesome meat; carcasses of calves, lambs or pigs under 4 weeks of age;
- (r) Animals too emaciated and anemic to produce wholesome meat;
- (s) Animals which are badly bruised, injured, or show tumors, abscesses, or suppurating sores;

shall be condemned and disposed of forthwith under the direction of the inspector, and in the manner specified in section 5 hereof. It shall be unlawful for any person to fail or neglect to comply with the provisions hereof.

SEC. 7. All plants within the city shall be provided by, and at the expense of the owner, with a suitable room in which condemned carcasses, or parts thereof, shall be held until such time as the inspector may be present to supervise the destruction thereof. Such room shall be arranged for locking with a padlock to be furnished at the expense of the owner of said establishment, the duplicate key to said padlock to remain in the possession of the inspector on duty thereat. It shall be unlawful for such owner to fail or neglect to make such provision or arrangement.

SEC. 8. If any plant in the city be not provided with a suitable room for containing said condemned carcasses, or parts thereof, as provided in section 7 hereof, or if for any reason said condemned carcasses, or parts thereof, can not be destroyed in accordance with the directions of, or on the day designated by, said inspector, such condemned carcasses, or parts thereof, shall be saturated with kerosene, provided at the expense of said establishment, and shall be padlocked to the structure pending their final destruction or disposition. Padlocks therefor shall be furnished by the city and keys thereof shall remain in the possession of the inspector on duty thereat. It shall be unlawful for the owner thereof, or his agents, to fail or neglect to comply with the foregoing conditions.

SEC. 9. All condemned carcasses, or parts thereof, shall have attached thereto, by means of wire and seal, a tag in form prescribed by the commissioner of health. Said tags, wire, and seal shall be furnished by the city.

SEC. 10. All carcasses, or parts thereof, which shall have been passed by said inspector, shall be stamped in purple ink, once upon each primal part, or that section or cut into which a carcass is commonly divided at the plant, with a stamp which shall make a clear and distinct impression. Said stamp shall be furnished by the city and shall be in form approved by the commissioner of health.

SEC. 11. Any person residing without the limits of the city of Seattle owning any animal or animals (except poultry and game), which he may desire to have slaughtered for human consumption within the city of Seattle, shall take such animal or animals to any plant within the limits of said city, as may be approved by the commissioner of health, for the purpose of subjecting them to the ante-mortem and post-mortem inspection hereinbefore provided for, and it shall be unlawful for any such person to neglect to comply with this provision.

SEC. 12. It shall be unlawful for any inspector to pass any meats, animals, or carcasses which are affected with any of the diseases or conditions hereinbefore set forth in sections 5 and 6.

SEC. 13. It shall be unlawful for any person to remove or mutilate the marks placed upon carcasses, or parts thereof, indicating that the same have been condemned.

SEC. 14. Each inspector upon being detailed as such in writing by the commissioner of health, shall furnish a bond in the sum of \$1,000, conditioned on the faithful performance of his duties and the enforcement of the provisions of this ordinance, the premium on said bond to be paid by the city; and only persons authorized to practice veterinary medicine, surgery, or dentistry in this

State shall be detailed as such inspector: *Provided, however,* That persons having been employed as veterinary inspectors by the Bureau of Animal Industry of the United States Department of Agriculture and who are in good standing with said bureau, may be considered as having proper qualifications and may be detailed as such inspectors.

SEC. 15. All inspectors are hereby invested with police powers and shall, while performing their official duties, wear badges furnished by the city in the form prescribed by the commissioner of health.

SEC. 16. Every plant shall at all times be operated and maintained according to the following rules and regulations:

(a) Any building to be used for the slaughtering, packing, storing, processing, or preparing of meat or meat food products, intended for human consumption, shall be so located as to be free from outside contamination which might deteriorate the quality of the products handled therein. Plans for new structures, or those to be remodeled, must be submitted to the commissioner of health for approval.

(b) All rooms in which meat food products are handled must have floors constructed of concrete or other impervious material, so laid as to readily drain to trapped and ventilated sewer. The interior of such rooms shall be so constructed as to be readily cleaned and such interior shall be cleaned daily after each day's work. Steam hose shall be provided in all such rooms where necessary to remove accumulations of grease, blood, dust, or other deleterious substances therefrom.

(c) Dressing rooms shall be provided for employees and shall contain lockers for clothing. Toilet rooms shall be provided adjacent to dressing rooms, and shall be equipped with modern plumbing, installed to conform with all city ordinances regulating plumbing, hot and cold water, shower bath, toilet paper, soap, and individual towels. Separate dressing rooms with toilet and bath shall be provided for women employees.

All dressing rooms and toilet rooms shall be properly lighted and ventilated to the outside, and shall be kept clean at all times.

(d) All doors and windows shall be adequately screened. All trucks, scrap containers, racks, stands, tables, and other appliances which come in contact with edible products, shall be of metal construction and kept clean and free from rust.

All knives, saws, cleavers, or other utensils, shall be thoroughly cleaned after each day's work. All wagons or motor vehicles used in transporting meat food products, shall be cleaned daily and be provided with canvas covers to protect meat food products from flies and dust in transit.

(e) Cuspidors shall be furnished in sufficient number, and so placed as to be accessible to employees in the habit of expectorating. They shall be of such shape that they will not easily upset, and of such material as to be readily cleaned and disinfected, and all such cuspidors shall be kept properly cleaned at all times.

(f) Slaughtering in all plants under city inspection shall be conducted between the hours of 8 a. m. and 5 p. m. only, unless by special arrangement with the commissioner of health. It shall be unlawful for the owner, or his agents, to fail or neglect to comply with the foregoing rules and regulations.

SEC. 17. It shall be unlawful for any person to sell meat intended for human consumption within the city without first obtaining a permit so to do from the commissioner of health. Any person desiring such a permit shall first make written application therefor to the commissioner of health, setting forth therein the name of such person and the location, by street and number, of the shop or plant where such person desires to sell such meat. The commissioner of health shall thereupon cause such shop or plant, with all the fixtures and appliances connected therewith, or to be used therein, to be carefully inspected, and if said shop or plant fully complies with the rules and regulations as prescribed by ordinances of the city of Seattle relating to health and sanitation, the said commissioner of health shall, if he be satisfied that the applicant be responsible and trustworthy, issue to said applicant, free of charge, a numbered permit in accordance therewith.

SEC. 18. In addition to other penalties provided by law, the commissioner of health reserves unto himself the right to revoke, or suspend any permit issued under the provisions of this ordinance at any time, where the same was procured by fraud, or false representation of fact, or for the violation of, or failure to comply with, any of the provisions of this ordinance by the person holding such permit, or any of his servants, agents, or employees, while acting within the scope of their employment, or the conviction of the person holding such permit of a felony or misdemeanor involving moral turpitude or an intent to defraud,

or the conviction of any of his servants, agents, or employees of any felony or misdemeanor involving an attempt to defraud committed while acting within the scope of their employment, or if the permittee, any of his servants, or agents or employees, while acting within the scope of their employment violate any law or ordinance relating to the sale or possession of intoxicating liquor, the use, possession, or sale of narcotic drugs, or violate any law or ordinance relating to public morality and decency. At least 3 days before revoking any permit, the commissioner of health shall cause to be mailed, or delivered, to the holder of such permit, at his last known address, a notice stating the time and place of hearing concerning the revocation, at which the permittee shall be entitled to be heard and introduce the testimony of witnesses. The action of the commissioner of health relative to such revocation shall be final: *Provided*, That whenever any person, to whom a permit has been granted under the provisions of this ordinance, shall be convicted of violating any of the provisions thereof, such conviction shall be prima facie evidence of facts sufficient to warrant revocation of the permit held by such person.

Any person whose permit has been revoked shall not again be granted a permit to engage in, or carry on, the same line of business for a period of at least one year from the date of such revocation.

The commissioner of health may suspend any permit issued under the provisions of this ordinance for a period of not less than 10 days, nor more than 60 days. All suspensions shall be made in writing and shall be effective immediately.

It shall be unlawful for any person whose permit has been revoked or suspended, to keep the permit issued to him in his possession or under his control, but said permit shall immediately be surrendered to the commissioner of health; in all cases of revocation the permit shall be canceled and whenever a permit is suspended the commissioner of health shall retain the same during the period of suspension.

SEC. 19. All permits issued pursuant to this ordinance shall expire on the 31st day of December of the year in which they are issued. No such permit shall be transferable. All such permits must be conspicuously posted in a public place upon the premises for which such permit was granted.

SEC. 20. It shall be unlawful for any person to bring or ship into the city any meat intended for human consumption therein, unless such meat has the number of said permit stamped thereon, or unless such meat bears the stamp mark or tag indication of inspection by the Bureau of Animal Industry of the Department of Agriculture of the United States, or the Department of Agriculture of the State of Washington, or of any city of the State of Washington, so long as the inspection of such meat is made by said bureau, department or city, under regulations like those contained herein.

SEC. 21. It shall be unlawful for any person within the city to sell any meat, poultry, or game, intended for human consumption therein, from any shop, or for any shop to keep open for business, or to permit any shop to keep open for business, or to receive at any shop, any such meat, poultry or game, or for any restaurant to receive any such meat, poultry, or game on any day except between the hours of 7 o'clock a. m. and 6 o'clock p. m.

SEC. 22. Any person failing to comply with or violating any of the provisions of this ordinance shall be guilty of a misdemeanor and, upon conviction thereof, shall be fined in a sum not exceeding \$300, or be imprisoned for a term not exceeding 90 days, or be both so fined and imprisoned.

SEC. 23. That all ordinances in conflict herewith be, and the same are hereby, repealed.

SEC. 24. This ordinance shall take effect and be in force 30 days from and after its passage and approval, if approved by the mayor; otherwise it shall take effect at the time it shall become a law under the provisions of the city charter.

SPRINGFIELD, MASS.

Poultry—Keeping, Killing, Dressing, and Preparation of, for Sale as Food. (Reg. Bd. of H., July 1, 1926)

No person, firm, or corporation shall engage in the business of keeping or killing chickens, geese, turkeys, ducks, poultry, or other fowls to be sold as food without having obtained from the board of health a permit for that purpose.

Any permit thus given may be revoked at any time for failure to comply with the following regulations governing the care and preparation of such foods.

1. All live poultry intended for sale as food shall be removed from the shipping crates as soon as received and placed in containers so constructed that they

may be maintained in a sanitary condition with suitable arrangements for watering and feeding.

2. All containers shall have metallic floors which can be readily removed and cleaned. Overcrowding of containers or lack of sufficient air will not be allowed.

3. The keeping of live poultry in stores or rooms where other foodstuffs or meats are stored or exposed for sale is prohibited as well as the use of cellars or rooms below the street floor for this purpose.

4. Separate rooms are to be provided for this purpose and maintained in a sanitary condition at all times with proper ventilation.

5. The killing, dressing, and preparation of poultry shall be done in a room set apart for that purpose, properly equipped, ventilated and maintained in a sanitary condition subject to the approval of the board of health.

SPRINGFIELD, MO.

Meat and Meat Food Products—Inspection—Inspection and Slaughter of Animals—Construction, Maintenance, and Operation of Slaughterhouses, Packing Establishments, etc. (Ord. 14637, November 30, 1926)

SECTION 1. It shall be unlawful for any person, firm, or corporation to sell, have, keep, or expose for sale for human food, or have in possession the flesh or meat food products of any cattle, calves, sheep, swine, or goats unless the same shall have been slaughtered or prepared under the supervision of a United States Government inspector in accordance with the regulations as prescribed by the Department of Agriculture of the United States regulating same; or by a State inspector under the laws of the State of Missouri now existing or enacted hereafter; or under the supervision of an inspector duly authorized by the commissioner of health and sanitation of the city of Springfield Mo., in accordance with the provisions of this ordinance.

SEC. 2. It shall be unlawful for any person, firm, or corporation to sell, have, keep, or expose for sale for human food, or have in possession the flesh or meat food products of any cattle, calves, sheep, swine, or other animals, unless there has been placed on each primal part thereof, package or container thereof, by and under the personal supervision of an inspector of the Department of Agriculture of the United States, or of the State of Missouri, a mark, stamp, label, or brand showing that the same has been inspected and passed for food purposes by the United States Department of Agriculture or by the State of Missouri; or a mark, stamp, label, or brand showing the same has been inspected and passed for food purposes by the city of Springfield Mo., and having the words, "Springfield, Missouri, inspected and passed," together with the number of the inspector who inspected same.

If any carcass of any animal hereinbefore named or part thereof is found, kept, exposed or offered for sale for human food within the city of Springfield, Mo., which does not bear any of the meat inspected marks, stamps, or brands, as aforesaid, the commissioner of health and sanitation, or his authorized agent, shall take possession of, condemn, and destroy same.

SEC. 3. The proprietor or operator of each abattoir, slaughtering, packing, meat canning, rendering, or similar establishment engaged in the slaughtering of cattle, calves, sheep, swine, goats or other animals, or in packing, canning, or other preparation of any food products into which meats or meat food products of said animals enter, either in whole or in part, for human food to be consumed in the city of Springfield, Mo., shall make application to the commissioner of health and sanitation of Springfield, Mo., for a permit so to do. The said application shall be made in writing, and shall state the location of such establishment, the name and address of the owner or authorized agent of same, the kinds of animals slaughtered, the day and hour of slaughtering, an estimate of the number of animals of any species slaughtered per day, the character, quantity, and proposed disposition of the products of said establishment, and such other information as may be required by the commissioner of health and sanitation. Upon the filing of such application, the commissioner of health and sanitation, or his legally authorized agent, shall inspect said establishment, and if same shall be found to comply with the provisions of this ordinance relative to the construction, equipment, and cleanliness of such establishment, a permit shall be issued. Said permit shall expire on the 31st day of December following date of issue, and shall be renewable annually. The commissioner of health and sanitation shall refuse and may revoke a permit, for failure to comply with any of the provisions of this ordinance. This shall be construed to prevent producers from butchering at home stock raised by them, as provided in section 4.

SEC. 4. Carcasses of animals, where such animals are the product and have been cared for, raised, and fed by the producer and killed upon farms outside the limits of the city of Springfield, Mo., for the purpose of being sold for human food in the city of Springfield, Mo., either directly to consumer or otherwise, shall be offered for inspection at the place designated by the commissioner of health and sanitation, and such carcasses presented for inspection must have the head, heart, liver, and lungs held by their natural attachments for identification, and the commissioner of health and sanitation, or his legally authorized agent or inspector, shall be notified by the person or persons desiring said carcass or portion thereof inspected so that adequate opportunity shall be given to make inspection of same by daylight, and if found to be free from disease and otherwise sound and healthful and fit for human consumption, said carcass or portions thereof shall be passed and approved for food purposes, and stamped or labeled, which stamp or label shall bear the words, "Springfield, Missouri, inspected and passed," together with the number of the inspector who inspected same. If such carcass, or portion thereof, shall be found diseased, unsound, unwholesome, or otherwise unfit for human food, it shall be condemned, and said inspector, making inspection shall destroy or determine the method of destroying the same for food purposes.

SEC. 5. An ante mortem examination and inspection shall be made of all cattle, sheep, swine, goats and other animals about to be slaughtered except as provided in section 4; the place of such inspection shall be well lighted and accessible to slaughtering establishment, and such cattle, sheep, swine, goats, and other animals, shall be slaughtered within 24 hours after said examination and inspection, and no such animal shall be slaughtered which is not passed at said examination, and inspection by the legally authorized inspector of the commissioner of health and sanitation. All animals failing to pass such examination and inspection shall be disposed of in a manner to be prescribed by said inspector. All animals showing symptoms of being affected with any disease or condition which would probably cause their condemnation in whole or in part when slaughtered, shall be marked by said inspector as a "suspect," and all such animals shall be slaughtered separately.

SEC. 6. (a) A careful post-mortem examination and inspection shall be made of all cattle, sheep, swine, goats, and other animals at the time of slaughter by a legally authorized inspector appointed by the commissioner of health and sanitation, and the head, the tongue, tail, thymus gland, and all viscera, and all parts and blood used in the preparation of meat food or medicinal products, shall be retained in such a manner as to preserve their identity until after post-mortem examination and inspection has been completed, in order that they may be identified in case of condemnation of such carcass. Suitable racks or metal receptacles shall be provided for retaining such parts.

(b) Carcasses and parts thereof found to be sound, healthful, wholesome, and fit for human consumption shall be passed and approved for food purposes and stamped or labeled, which stamp or label shall bear the words, "Springfield, Missouri, inspected and passed," with the number of the inspector who inspected same.

(c) Any lesion, diseases or other condition found shall be judged in accordance with the regulation governing "the meat inspection of the United States Department of Agriculture," then effective.

(d) Carcasses and parts thereof, or other meat food products held for final examination and inspection or disposal, shall be marked or labeled by placing on such carcasses or parts thereof, or other meat food product, a tag bearing the words, "Inspected and retained," and no person other than an authorized inspector of the commissioner of health and sanitation shall remove such tag.

(e) All condemned or retained carcasses or parts thereof shall be disposed of only in the presence of a legally authorized inspector of the commissioner of health and sanitation.

SEC. 7. No mark, stamp, or label as provided herein shall be placed upon or attached to any carcass or portion thereof, of any animal to be used as human food except by the commissioner of health and sanitation or his legally authorized inspector, except as hereinbefore provided.

SEC. 8. No person, firm, or corporation, shall sell, have, keep, or expose for sale, for human food in the city of Springfield, Mo., or have in possession any cattle, calves, swine, sheep, goats, fish, fowl, or poultry, or meat thereof, which has been condemned by the commissioner of health and sanitation or his legally authorized inspector, or by an inspector or agent of the United States Government or of the State of Missouri.

SEC. 9. No animal shall be passed or approved by the commissioner of health and sanitation or his legally authorized inspector, as suitable for human food when it is suffering from any diseases or injury which causes a feverish condition or an elevation of temperature or when it is badly bruised or injured or shows tumors, abscesses, or suppurating sores, or when it is too emaciated or weak to produce wholesome food, or the carcass of any unborn animal, or of any calf weighing less than 50 pounds when dressed, or any carcass of any animal which after killing shows a greenish yellow discoloration or the carcass of any animal which died from accident or disease, or which has not been properly killed and bled.

SEC. 10. Any person, firm, or corporation, holding a permit under the provisions of this ordinance, and desiring to slaughter any cattle, sheep, goats, swine, or other animals, the flesh or edible products thereof, which is to be sold, kept, or exposed for sale for human food in the city of Springfield, Mo., shall give notice thereof and that the service of an inspector, will be required, to the commissioner of health and sanitation or his legally authorized inspector, at least 24 hours before such slaughtering is to take place, and the person in charge of the slaughtering at such establishment, shall notify at the close of each day, the commissioner of health and sanitation or his legally authorized inspector, who is in charge of the inspection at said establishment, at what time on the following day the work of slaughtering will be commenced, and if no slaughtering is to be done on the day following, then notice shall be given at what time and on what succeeding day the work of slaughtering will be next commenced. In case of dispute as to time when slaughtering shall commence in any such establishment, the commissioner of health and sanitation shall designate the time for such slaughtering to commence.

SEC. 11. The slaughtering of all animals in establishments operating under the provisions of this ordinance shall be conducted on week days between the hours of 6.30 a. m. and 5 p. m., except in certain cases of emergency when permission to slaughter may be granted by the commissioner of health and sanitation or his legally authorized inspector, or except in the case of injury or other extraordinary cases when it is necessary to kill animals out of established hours, in which case the carcasses of all such animals, with the viscera attached, and all other parts identifiable, shall be kept and held for inspection.

SEC. 12. All meats or meat food products sold, kept or exposed for sale for human food, in the city of Springfield, Mo., shall be subject to reinspection and condemnation at any and all times by the commissioner of health and sanitation or his legally authorized inspector.

SEC. 13. It shall be unlawful for any person, firm, or corporation, officer or agent or employee thereof, to forge, counterfeit, simulate, or falsely represent or without proper authority to use or detach or knowingly or wrongfully alter, deface, or destroy any mark, stamp, label, brand, or tag placed by an inspector legally authorized by the commissioner of health and sanitation of the city of Springfield, Mo., pursuant to the provisions of this ordinance on any cattle, calves, sheep, lambs, goats, swine, or other animal or part thereof.

SEC. 14. No permit shall be issued, and it shall be unlawful for any person, firm or corporation, to engage in the business of slaughtering of animals in any abattoir, slaughtering, packing, meat canning, rendering, or similar establishments, for use for food purposes in the city of Springfield, Mo., unless such establishment shall conform strictly to the following in construction, maintenance, and operation; except as provided in section 4, of this ordinance, and except such establishments that hold a permit under the laws of the State of Missouri or the Department of Agriculture of the United States Government.

For carrying into effect and defining the provisions herein set forth, the following rules are hereby adopted and made a part of this ordinance:

RULE 1. Every such establishment shall consist of a substantial and suitable building, well lighted, containing a killing room, a chill room, a cold storage and refrigerating room, a reduction plant and suitable pens and chutes, which shall be kept clean and in a sanitary condition.

RULE 2. The killing room shall be adequate in size, and the floor of said killing room shall be of concrete not less than 4 inches thick, connected with sewer by means of deep seal back-water traps and constructed in such a manner as to secure perfect drainage; it shall be provided with hot and cold water; also tank for scalding animals, together with an ample supply of hose; it shall be provided with runways, windlasses, overhead trackage, and system of trolleys running from the killing rooms into and connecting with chill and cold storage rooms, by which and upon which animals slaughtered can be raised, lowered,

and carried from killing room to chill room and cold-storage room; it shall be amply equipped with buckets, tubs, and other utensils and devices into which the blood, offal, and refuse shall be placed, and immediately removed to the reduction plant. The walls, ceiling, and partitions in said building and the floor of the same shall be constructed of material susceptible of a high degree of sanitation and easily kept so; and all apparatus, tools, knives, and cleavers, etc., used in or about building shall be kept perfectly clean; said room shall be provided with cuspidors, lavatories, and individual towels, and soap for the use of employes working therein. All outside doors shall have vestibules and be doubly screened.

RULE 3. The chill room shall be of adequate size, and connected with sewer by means of deep seal back-water traps, and constructed in such manner as to secure perfect drainage; the walls, partitions, and ceilings of said room shall be thoroughly insulated with approved material and equipped in such a manner that all vapors shall be condensed properly and trapped into the sewer, thereby securing as far as practical dry refrigeration; said construction and equipment shall be such that the approximate temperature maintained shall be 40° F. It shall also be equipped with overhead trolleys and trackage, connected with the killing rooms and also with the cold storage or refrigerating rooms, and shall be sufficient in height and capacity to permit all animals to be hung from trolleys, and no animal or portion of same shall be placed on the floor or permitted to rest thereon and all animals or food products placed therein shall be handled with the hands as little as possible.

RULE 4. Cold storage and refrigerating rooms shall be of adequate size and connected with sewer by means of deep seal back-water traps, and shall be equipped with an adequate system of artificial lights; the walls, partitions, and ceiling of said room shall be thoroughly insulated with approved insulating material and constructed in such a manner as to produce dry refrigeration, and said construction and equipment shall be such that the approximate temperature to be maintained shall be 34° to 36° F. It shall also be connected with the killing room and chill room by overhead tracks and trolleys, which shall be sufficient in height, size, and capacity to permit all animals killed and stored therein to be hung from trolley, and all animals slaughtered shall be suspended from said trolley and no portion of same placed on the floor; the walls, partitions, and floor shall be kept perfectly clean.

RULE 5. The reduction plant shall be of adequate size and equipped with vacuum pumps, engines, and machinery of sufficient size and capacity for the odorless disposal of all offal, blood, and residue resulting from the slaughtering of animals, and the products taken from said plant shall be finished products; the rooms in which tankage and tallow are removed from the reduction plant shall be of adequate size, and floors shall be constructed of concrete not less than 4 inches thick and connected with sewer by means of deep seal back-water traps, and shall be supplied with water service in such manner as to secure perfect drainage. The floors of the room in which refuse is handled and placed in reduction plant shall be constructed of concrete, 4 inches thick, and shall be kept clean and in good sanitary condition, all offal and refuse from slaughtered animals to be reduced not later than 12 hours after slaughtering same, except as hereinafter provided.

RULE 6. No animals intended for slaughter shall remain on the premises or premises immediately adjoining or adjacent thereto, to exceed 24 hours, nor shall they be slaughtered while overheated, or in a diseased, feverish, or exhausted condition. No calf less than 6 weeks old; no pig less than 5 weeks old, and no lamb less than 8 weeks old, shall be killed for human food or shall be kept or offered for sale for human food.

RULE 7. No employees or other persons shall be permitted to expectorate on the floor, and proper cuspidors which will not readily upset shall be provided for employees in each room and shall be cleaned daily and kept thoroughly sanitary.

RULE 8. Water-closets and lavatories for employees shall be entirely separated from and not next to any compartments in which carcasses are dressed or meat food products are stored, placed, handled, or prepared unless separated by a brick wall not less than 8 inches thick. Such closets and lavatories shall be conveniently located, sufficient in number, and shall be kept in sanitary condition.

RULE 9. The rooms in which meat or meat food products are prepared, stored, packed, or otherwise handled, shall be free from odors from water-closets, lavatories, catch basins, tank rooms, etc., and shall be kept free from flies and other vermin by screening or other methods.

RULE 10. Employees who dress or handle carcasses or parts thereof found to be diseased, or which has [have] been condemned, shall cleanse their hands thor-

oughly and then immerse them in a prescribed disinfectant and rinse them in clear water before again dressing or handling carcasses. All tools or implements used in dressing diseased carcasses shall be sterilized either in boiling water or by immersion in a prescribed disinfectant, followed by rinsing in clear water, and facilities for doing same shall be provided.

RULE 11. Meat and food products must not be permitted to fall on floors, and, in event of their having so fallen, must be condemned or soiled portions liberally removed.

RULE 12. Carcasses shall not be inflated with breath from the mouth, and no inflation is allowed except when done by mechanical means, using air only. Carcasses shall not be dressed with skewers, knives, etc., that have been held in the mouth. Spitting on whetstones or steels when sharpening knives is prohibited.

RULE 13. Only pure, clean, wholesome water shall be used in the preparation of carcasses, parts of meat, or meat food products, etc. Where an animal is condemned by the inspector after having been slaughtered, it shall be immediately rendered in the reduction plant, and notice to that effect given to the owner, who shall be paid by the abattoir or those conducting same the value of the tankage and tallow less expenses for rendering same.

RULE 14. Each carcass of every animal slaughtered shall be kept in the chill and refrigerating room at least 12 hours before same is delivered to owner or used for food or offered for sale as food.

RULE 15. Wagons in which meat or meat food products are delivered shall be constructed and covered so that the contents shall be kept clean and dry and dust proof.

RULE 16. No dogs or other such animals shall be allowed to enter any room or place where meat or meat food products are slaughtered, handled, or stored.

RULE 17. Every such establishment shall be subject to inspection at any and all times by the commissioner of health and sanitation or his legally authorized agent.

RULE 18. All employees must at all times be clean in habits and attire; no person affected with tuberculosis or any other communicable disease, or any skin disease, shall be employed in any department of such establishment where animals are killed, carcasses dressed, meat handled, or meat food products prepared. Employees who handle meat or meat food products shall be required to keep their hands clean at all times.

SEC. 15. The commissioner of health and sanitation shall keep a record of all permits issued under the provisions of this ordinance.

SEC. 16. The commissioner of health and sanitation or his legally authorized agent, shall collect from all persons, firms, or corporations for whom any inspection or examination of meats or meat food products is made as provided in this ordinance, the following fee, to wit:

For inspection of beeves not over 25 cents each.

For inspection of veal not over 15 cents each.

For inspection of hogs not over 15 cents each.

For inspection of sheep or goats not over 15 cents each.

Said fees shall be paid in advance to the commissioner of health and sanitation or his legally authorized agent making the inspection or examination and such fees so collected shall be paid into the office of the commissioner of revenue of the city of Springfield, by said commissioner of health and sanitation, or his legally authorized agent, and shall be placed in the meat and food inspection fund of said city. The commissioner of health and sanitation, or his legally authorized agent, making such examination and inspection, shall keep a record of all fees collected, which record shall contain the name of each party for whom the inspection was made, kind of meat inspected, amount of fee collected therefor, and whether meats are rejected or approved, and if rejected what disposition was made of same, and shall make a monthly statement to the city council of the city of Springfield, Mo., which statement shall be filed with the city clerk of said city, and shall contain a complete copy of all the records herein required to be kept.

SEC. 17. Whoever shall violate any of the provisions of this ordinance or any of the rules or regulations therein contained, or whoever shall hinder or obstruct the commissioner of health and sanitation, or anyone authorized to act for him from the doing of anything provided for in this ordinance, shall be deemed guilty of a misdemeanor and upon conviction in the municipal court shall be punished by a fine of not less than \$10, nor more than \$100, or by imprisonment in the city jail for not less than 10 days nor more than three months, or by both such fine and imprisonment.

MIDWIFERY

BLOOMFIELD, N. J.

Midwives—Registration—Requirements Governing. (Reg. Bd. of H., March 10, 1924)

SEC. 183. Any person shall be regarded as practicing midwifery within the meaning of this ordinance who shall publicly profess by advertisement, sign, card, or otherwise to be a midwife, or who shall, for a fee, attend women in childbirth.

SEC. 184. Before any person, other than a physician duly licensed to practice medicine in this State, begins the practice of midwifery in the town of Bloomfield, she shall be required personally to register her name and address in the office of the health officer of the said town. Any midwife changing her name or address shall forthwith report such change to the said health officer.

SEC. 185. No midwife in the town of Bloomfield shall prescribe or administer any drug or medicine except some preparation of ergot after the birth of the head of the infant, or household remedies, nor shall she attend other than cases of labor.

SEC. 186. No midwife shall in any case of labor use instruments of any kind nor assist labor by any artificial forcible or mechanical means, or perform version or attempt to remove adherent placentae.

SEC. 187. Midwives shall always secure the immediate services of a reputable physician whenever any abnormal signs or symptoms appear in mother, infant, or expectant mother.

SEC. 188. The board of health of the town of Bloomfield shall have the power to promulgate such rules regulating the practice of midwifery in said town, as it shall deem necessary to safeguard the health of the infants, mother, and expectant mothers.

Copies of such rules shall be served upon persons practicing midwifery in said town.

MEMPHIS, TENN.

Midwifery—Regulation of Practice of—Reports of Births, Venereal Diseases, and Ophthalmia Neonatorum and Administration of Preventive Treatment for Ophthalmia Neonatorum by Midwives. (Ord. January 22, 1924)

SECTION 1. That any person delivering any woman in childbirth or assisting in the delivery, other than a physician or a nurse acting under the supervision of a physician, shall be considered as carrying on the trade or profession of midwifery, whether the service be rendered for compensation or without charge.

SEC. 2. That no person shall practice the trade or profession of midwifery in the city of Memphis until they shall have secured a license.

SEC. 3. That any person desiring to practice the trade or profession of midwifery shall apply to the superintendent of health in writing for a license. Said application shall state the name and address of the applicant, the length of residence in the city of Memphis, what training such applicant has had, and how long such applicant has practiced midwifery. Upon the filing of such application the superintendent of the department of health shall thereupon make suitable arrangements for conducting an examination, and shall notify the applicant by a written notice of the time and place where the examination is to be held, at least three days before the date of the examination.

The examination shall ascertain:

(1) Whether the applicant has an adequate outfit such as is required in such work, and whether this outfit is clean and well cared for.

(2) Whether the applicant is in good physical condition and free from any communicable disease, or otherwise incapacitated for such work.

(3) Whether the applicant has been successfully vaccinated.

(4) Whether the applicant possesses adequate knowledge of such trade or profession.

(5) Whether the character of the applicant is such as to make such person a fit person to engage in such trade or profession.

Upon passing a satisfactory examination covering the above points the applicant shall be issued a license to practice such trade or profession. Every license shall expire on December 31 of the year in which it is issued, and shall be renewed upon the record of the individual or upon reexamination, in the discretion of the superintendent of health.

Any license issued to a person to practice the trade or profession of midwifery may be revoked when such person fails to comply with the provisions of this ordinance; fails to report stillbirths as provided for by law; fails to attend conferences upon notice from the superintendent of health; who neglects his or her patients; who is guilty of malpractice; whose morals are proved to be bad, or for any other justifiable cause.

Before the revocation of any such license the superintendent of health shall notify the licensee in writing of the time and place at which such licensee will be heard as to why the license should not be revoked; and no license shall be revoked without an opportunity to the licensee to be heard.

SEC. 4. That any person who delivers or assists in delivering any woman shall report all births and stillbirths, as required by the provisions of chapter 30 of the public acts of the general assembly of the State of Tennessee for 1913 and all acts amendatory thereof and supplementary thereto.

SEC. 5. That every person practicing the trade or profession of midwifery shall report to the superintendent of health any case of venereal disease that he or she may recognize or have knowledge of in the persons attended by them. Such person shall also report to the superintendent of health any child delivered by such person whose eyes become infected or inflamed, giving the name, address, age, sex, and color of such child.

Every midwife in attendance at the birth of an infant shall drop into the eyes of the infant after delivery the prophylaxis prescribed by chapter 52 of the public acts of the general assembly of the State of Tennessee for the year 1915, and shall in each case carry out the provisions of said act.

SEC. 6. That every midwife shall report to the superintendent of health for conference, instruction, or examination, whenever summoned by the superintendent of health, and upon failure of such person to attend such conference or examination the license of such person shall be revoked until the said person shall make satisfactory explanation to the superintendent of health for his or her absence. Every midwife shall carefully follow all instructions given by the superintendent of health, or his duly authorized deputies or assistants, relative to the conduct of the trade or profession of midwifery.

SEC. 7. That any person violating the provisions of this ordinance shall be guilty of a misdemeanor, and upon conviction thereof shall be fined not less than \$1 nor more than \$50. Each day that any person practices the trade or profession of midwifery without a license, or after revocation of any license issued, shall constitute a separate offense.

TAMPA, FLA.

Midwifery—Regulation of Practice of—Reports of Births by Midwives. (Ord. April 24, 1923)

REG. 36. *Practice of midwifery.*—(36A). That no person who is not a duly licensed physician shall be permitted to practice midwifery in the city of Tampa without complying with provisions of these regulations.

(36B). Every midwife desiring to practice midwifery in the city of Tampa shall before so doing apply to the registrar of vital statistics of said city for registration and sign a pledge card agreeing to carry out all of the rules relating to the practice of midwifery which may be prescribed by the city health officer, and filed with the said registrar of vital statistics.

(36C). Every midwife must report each birth she attends within 24 hours on the blanks adopted by the State of Florida and furnished to the registrar of vital statistics of said city.

(36D). Every midwife is required to attend a class of instruction held or conducted under direction of the health officer when notice requiring the same

shall be given to such midwife by the registrar of vital statistics and after concluding a course of 10 lessons, each midwife will be presented with a registration certificate permitting such midwife to practice midwifery as long as such person conforms to the regulations prescribed by the health department of the city of Tampa, in conformity with those of the State of Florida.

(36E). All midwives practicing midwifery in the city of Tampa are subject to the conditions and the regulations adopted by the health department of the city of Tampa.

(36F). The registrar of vital statistics shall make and keep a register of all persons practicing midwifery in Tampa and a record of any facts pertinent to compliance of each said midwife with instructions, regulations, and the art of midwifery.

MILK AND MILK PRODUCTS¹

AMARILLO, TEX.

Milk and Milk Products—Production, Handling, and Sale. (Ord. 460, December 15, 1925)

SECTION 1. The following definitions shall apply in the interpretation and the enforcement of this ordinance:

(1) *Milk*.—Milk is hereby defined to be the whole, fresh, clean lacteal secretion obtained by the complete milking of one or more healthy cows, properly fed and kept, excluding that obtained within 15 days before and 10 days after parturition, or such longer period as may be necessary to render the milk practically colostrum free; and which contains not less than 9 per cent of solids not fat and not less than $3\frac{1}{2}$ per cent of milk fat.

(2) *Baby milk*.—Baby milk is milk corresponding, in every respect, with that of milk as described under paragraph (1) of this section, except that the milk fat therein allowed is permitted as low as 2 per cent.

(3) *Certified milk*.—Certified milk is milk which conforms with the requirements of the American Association of Medical Milk Commissions, and produced under the supervision of the Medical Milk Commission of the Medical Society of Amarillo, Potter County, Tex.

(4) *Milk fat or butterfat*.—Milk fat or butterfat is the fat of milk and has a Reichert-Meissal number of not less than 24 and a specific gravity of not less than 0.905 at 40 C/40C.

(5) *Butter*.—Butter is hereby defined as being that fatty portion of milk or cream, sweet or sour, obtained as a result of churning and must contain not less than 80 per cent butter or milk fat and not more than 16 per cent moisture.

(6) *Cream*.—Cream, sweet cream, is that portion of milk, rich in milk fat which rises to the surface of milk on standing or is separated from it by centrifugal force, is fresh and clean, and which contains not less than 18 per cent of milk fat.

Light cream is that cream containing not less than 18 per cent and not more than 30 per cent of milk fat.

Heavy cream is that cream containing not less than 30 per cent and not more than 40 per cent of milk fat.

Extra heavy or whipping cream is that cream which contains 40 per cent milk fat or more.

(7) *Skimmed milk*.—Skimmed milk is milk from which substantially all the milk fat has been removed.

(8) *Adjusted milk*.—Adjusted milk is milk to which cream has been added to or taken from in order to adjust the percentage of milk-fat content.

(9) *Buttermilk*.—Buttermilk is the product which remains when milk fat is removed from milk or cream, sweet or sour, in the process of churning. It contains not less than $8\frac{1}{2}$ per cent of milk solids, not fat.

(10) *Cultured buttermilk*.—Cultured buttermilk is that product produced from skimmed or whole milk that has been treated with a lactic acid culture to produce souring.

(11) *Evaporated milk (unsweetened)*.—Evaporated milk (unsweetened) is milk from which a considerable portion of the water has been evaporated, and which contains not less than $25\frac{1}{2}$ per cent of milk solids and not less than $7\frac{1}{16}$ per cent of milk fat.

(12) *Condensed milk (sweetened)*.—Condensed milk (sweetened) is milk from which a considerable portion of the water has been evaporated, to which sugar has been added, and which contains not less than 28 per cent of solids and not less than 8 per cent of milk fat.

¹ See also Communicable diseases, p. 44; Food, drinks, and food establishments, p. 73; Ice cream, p. 124.

(13) *Condensed skimmed milk*.—Condensed skimmed milk is skimmed milk from which a considerable portion of the water has been evaporated and which contains not less than 20 per cent of milk solids.

(14) *Powdered (dried) whole milk*.—Powdered whole milk is milk from which substantially all the water has been removed, and which contains not less than 26 per cent of milk fat, and not more than 5 per cent of moisture.

(15) *Powdered (dried) skimmed milk*.—Powdered skimmed milk is skimmed milk from which substantially all of the water has been removed, and which contains not more than 5 per cent of moisture.

(16) *Goat milk*.—Goat milk is that milk produced from the complete milking of a goat that has been fed, watered, and cared for under the same sanitary regulations as that herein required for cows.

(17) *Milk products*.—Milk products shall be taken to mean and include cream, skimmed milk, adjusted milk, buttermilk, cultured buttermilk, evaporated milk (unsweetened), condensed milk (sweetened), condensed skimmed milk, powdered whole milk, powdered skimmed milk, butter, and cheese.

(18) *Cheese*.—Cheese is the sound product made from the curd obtained from the whole, partly skimmed, or skimmed milk of cows or from other animals, with or without added cream, by coagulating the casein with rennet, lactic acid, or other suitable enzyme or acid and with or without further treatment of the separated curd by heat or pressure, or by means of ripening ferments, special molds or seasoning.

(19) *Clarification*.—"Clarification," "clarified," "clarify" and similar terms shall be taken to refer to the centrifugal process used to take from milk or milk products of a liquid content foreign matter and impurities.

(20) *Pasteurization*.—The terms "Pasteurization," "Pasteurized," "Pasteurize," and similar terms shall be taken to refer to the process of heating milk or milk products to a temperature of not less than 142° F., and holding at such temperature for not less than 30 minutes, in a Pasteurization apparatus approved by the health officer or his assistant, the temperature and time being automatically recorded by a temperature and time recording device permanently attached thereto and approved by the health officer or his assistant. "Flash system Pasteurizers," absolutely prohibited for the Pasteurization of whole milk.

(21) *Adulterated milk and milk products*.—Adulterated milk and milk products are such products defined in this ordinance which do not conform with the definitions contained in this ordinance.

(22) *Milk producer*.—A milk producer is any person, firm, or corporation who owns or controls one or more cows, a part or all of the milk from which is for sale or sold or delivered to another person, firm, or corporation.

(23) *Milk distributor*.—A milk distributor is any person, firm, or corporation which has in possession, offers for sale, sells, or delivers to another, any milk or milk product for consumption or manufacturing purposes, which milk or milk product has been produced by another.

(24) *Dairy or dairy farm*.—A dairy or dairy farm is any place or premises where one or more cows are kept, a part or all of the milk or milk products from which is sold or delivered to any person, firm, or corporation.

(25) *Milk plant*.—A milk plant is any place, or premises, or establishment where milk or milk products are collected, handled, processed, stored, bottled, Pasteurized, or prepared for distribution.

(26) *Health officer*.—The health officer shall be taken to mean the health officer of the city of Amarillo, Tex., in person, or his authorized representative.

(27) *City inspector*.—The city inspector of the city of Amarillo, Tex., as that term is herein used, shall be taken to mean the city inspector of the city of Amarillo in person or his authorized representative. He shall be under the direction of the city health officer and have direct or immediate charge of the sanitation of the city and of the inspection, classification, and condemnation of any or all food or food products produced within or brought into the city for sale or distribution for human consumption. He shall have supervision over all dairies, distributing plants, milk depots or plants, and such milk products as such plants may offer for sale or distribution as food for human consumption.

(28) *City chemist*.—The city chemist, as that term is herein used, is herein defined as being that person, skilled in the science of analytical chemistry and bacteriology, employed by the city of Amarillo to make such tests, analyses, and examinations as are required by this ordinance or as directed by the city health officer or city manager of the city of Amarillo, Tex.

(29) *Dairy inspector.*—The dairy inspector, as that term is herein used, is defined as being that person employed by the city of Amarillo having a practical knowledge of cows, their care and feeding, and of the production, handling, processing, storing, and dispensing of milk and milk products, and whose duty it shall be to visit all dairies, milk plants, creameries, and other establishment[s] where milk or its products are handled or processed, for the purpose of inspecting, grading, and assisting with the execution of the provisions of this ordinance.

SEC. 2. *The sale of adulterated or misbranded milk or milk products prohibited.*—No person, firm, association, or corporation shall within the city of Amarillo, Tex., produce, sell, offer or expose for sale, barter, or trade any milk or milk product which is adulterated or misbranded and all such products, or grades of products shall be labeled or branded to show the true content or contents of such receptacle or receptacles wherein contained, as set forth in this ordinance.

SEC. 3. *Permits.*—(a) It shall be unlawful for any person, firm, association, or corporation to bring into or receive into the city of Amarillo, Tex., for sale or to sell or to offer for sale, or to have on hand for sale any milk or milk product, excepting evaporated milk, condensed milk, condensed skimmed milk, powdered whole milk and powdered skimmed milk, sour cream or butter, who does not possess a valid permit from the health officer of the city of Amarillo, Tex., and on whose vehicles and in whose place of business there does not appear in a conspicuous place a placard showing the permit number in figures at least 3 inches high and 1½ inches wide.

(b) Such a permit shall be revoked by the health officer, effective immediately, upon the violation by the holder of any of the terms of this or any other health ordinance of the city of Amarillo, the state sanitary code or rules or regulations promulgated by the state board of health: *Provided*, That the holder of such permit may have same reissued or reinstated after fully complying with the terms of this ordinance, to the satisfaction of the health officer.

(c) *Provided* that requiring of such permits does not apply to groceries, markets, cafés, restaurants, hotels, boarding houses, fountains, or confectioneries, or places where milk or milk products are dispensed or are sold direct to consumer with other food articles and where such milk or milk products are [so?] dispensed or sold have been procured from a person, firm, association, or corporation holding a valid permit to produce or process milk or milk products.

(d) Permits will be required for each dairy farm or milk plant from which milk or milk products are produced, bottled, processed, or handled for sale, excepting those mentioned under paragraph (c) of this section.

(e) Permits are not transferable. A permit is issued to a particular person, firm, or corporation and no other person, firm, or corporation is authorized and empowered to sell milk or milk products under or by virtue of its terms.

(f) Willful or continuous violation of any of the provisions of this ordinance will be sufficient cause for the permanent revoking of any milk permit held under the provisions or terms of this ordinance by the city health officer.

(g) The city health officer may revoke or cancel the permit of any person, firm, or corporation, who shall bring into the city of Amarillo, Tex., for sale or for the purpose of offering for sale any milk or milk products from any unapproved or excluded source of supply.

(h) Permits will be issued only after applicant shall have filed with the city health officer, a properly executed application form, such application form to be furnished by the city of Amarillo, Tex., and in which is set out in detail, the kind of milk business to be conducted, name and address and location of such business, the number of cows and amount of milk to be produced, bought, or sold, facilities for caring for milk handled and method of handling and such other information as set out in such form.

(i) Permits may be revoked or canceled by giving written notice to the holder of such permit or to his agent, manager, or other such party representing such holder, by the city health officer of the city of Amarillo, Tex., or by his assistant.

(j) A permit when issued by the city health officer as herein provided shall remain in force until the 1st day of January of the year next succeeding from the date of its issuance, unless revoked or canceled by the city health officer: *Provided*, That all persons, firms, and corporations required by the terms of this ordinance to obtain a permit, shall, on the 1st day of January of each year, procure from the city health officer a permit for that year which shall remain in force for a period of one year unless revoked or canceled by the city health officer. No permit shall remain in force except during the year in which issued, and all persons, firms, and corporations shall on the 1st day of January of each

year obtain a new permit: *Provided*, That a permit may be issued at any time by the city health officer but shall not be in force beyond the 1st day of January of the next succeeding year.

SEC. 4. *Storage of milk products.*—Milk or milk products for sale, use, consumption, distribution, exchange, barter, or other disposition, as food for human beings, in any store, shop, restaurant, market, bakery, hotel, drug store, confectionery, or other establishment, shall always be kept in a box cooler or refrigerator at a temperature not to exceed 60° F. and shall be protected at all times from dust, flies, roaches, and other insects and vermin and where noxious odors from decaying animal or vegetable matter will not permeate thereinto. Such box or storing receptacle must be kept clean and sanitary at all times.

SEC. 5. *Shipping of sour cream.*—Sour cream may be shipped or otherwise brought into the city of Amarillo, Tex., from points outside the city from such distances that inspection of such sources of production are impractical by city inspector: *Provided*, Such sour cream is properly Pasteurized upon arrival and afterwards made into butter: *And further provided*, That such sour cream arrives at such milk plant or creamery, at Amarillo, Tex., in a clean and sanitary condition. The city health officer or his assistants may condemn any or all shipments of such products that do not arrive in clean and sanitary condition and kept so until Pasteurized.

Milk famine, strike, or other emergency.—In case of milk famine, milk strike, or other emergency, shipments of whole milk into the city of Amarillo, Texas, from other towns or cities where inspection is maintained, may be permitted: *Provided*, That the dairy or dairies or milk plants from which such shipments are made are being regularly inspected and scored or graded by the inspector at the point of origin of such shipments and meet similar requirements as are imposed on similar establishments in the Amarillo district: *Provided further*, That such milk is not adulterated or misbranded and that no preservative is added to such milk to keep it from souring in transit. All such milk shipped into the city of Amarillo, Tex., shall be properly Pasteurized before being sold for consumption in the city of Amarillo, and permission must first be obtained in writing from the city health officer of Amarillo, Tex., permitting the sale of such products within the city of Amarillo.

SEC. 6. *Health of cows and disinfecting.*—(a) No cow shall be used in the production of milk, by any person, firm, or corporation which is known to be suffering with splenic fever, anthrax, tuberculosis, or any other contagious or infectious disease or which is suffering with any local or general pathologic condition especially where a febrile condition is present, and as soon as any such disease, or condition is detected in any cow or cows from which milk is being produced, said cow or cows shall be isolated and barn and inclosures shall be cleaned thoroughly and in case of contagious or infectious disease then such barn and inclosures shall be disinfected in addition to such cleaning according to the following directions: Liquor cresolis compositus at a dilution of 4 fluid ounces to 1 gallon of water; liquified phenol at a dilution of 6 fluid ounces to 1 gallon of water or chloride of lime (U. S. P. strength, 30 per cent chlorin) at a dilution of 1 pound to three gallons of water. No milk shall be sold from such dairy or dairy farm until authorized to do so by the health officer of the city of Amarillo, Tex., following such disease or pathologic condition described above.

(b) It is further required that each and every cow used in the production of milk or milk food products for sale or distribution in the city of Amarillo, Tex., shall be tuberculin tested every 12 months and a chart furnished the city health officer showing such cow to be free from tuberculosis. This test to be made only by a graduate veterinarian licensed to practice veterinary science in the State of Texas.

SEC. 7. *Health certificates, reexamination, cleanliness.*—(a) It shall be unlawful for the owner or manager of any dairy, milk depot, milk plant, or creamery to employ any person to milk any cows, handle any milk or other milk products, or assist in any way with the production procession [processing?], or handling of such products for sale in the city of Amarillo, Tex., who does not hold a health certificate issued by the city health officer of the city of Amarillo, Tex., within the preceding six months, showing him or her to be free from all contagious or infectious diseases, as the result of actual examinations or tests, having been made by such health officer. Owners or managers of such establishments are herein held equally responsible with employees for such health certificates.

(b) The city health officer or his assistant may cite any holder of a health certificate to a reexamination at any time such holder might be suspected of having a contagious or infectious disease or any local or general pathologic condition

whereby the said person might be a source of spreading such disease or be in any way a menace to public health.

(c) It shall be unlawful for any person to milk any cows, handle any milk or other milk products, or assist in any way with the production, processing, or handling, of such product for sale in the city of Amarillo, Tex., who does not maintain him or herself in a clean and sanitary condition, wearing at all times while engaged in the milking or handling of milk, or any of its products, clothing free from excess grease or filth.

SEC. 8. *Conveyances.*—It shall be unlawful for any person, firm, or corporation, or the agent of any such person, firm, or corporation, to transport, convey, or make deliveries of milk or milk food products from any wagon, truck, or other vehicle which is not equipped with a body sufficiently tight to prevent the contamination from dust, flies, and other insects while being transported and delivered. Such conveyance shall be kept clean and sanitary at all times and there shall not be carried on such vehicle any receptacle containing slop, swill, garbage, or any other putrid or foul smelling substances: *Provided*, Grade C raw milk for cooking or manufacturing purposes or grade B milk being sold in bulk to milk depot, milk plant, or creamery may be transported or conveyed in open vehicle, provided such milk be properly protected from dust, flies, and other vermin with suitable cloth covering approved by city health officer.

SEC. 9. *Impure milk.*—It shall be unlawful for any person, firm, or corporation or their agent or representatives to sell or offer for or expose for sale or exchange any unwholesome, watered, adulterated, or impure milk or milk products, or such milk or milk products from cows being fed upon garbage, swill, stagnant water, or other deleterious substance or from cows kept in connection with a family in which there is a contagious or infectious disease.

SEC. 10. *Adulteration, milk and products.*—Milk and milk products shall be deemed adulterated and unwholesome:—

(a) When drawn from animals 15 days before or 10 days after parturition.

(b) When drawn from animals kept in a crowded or unsanitary condition, or from crippled, emaciated, or otherwise unhealthy physical condition.

(c) When drawn from animals fed on swill, garbage, stagnant or polluted water, or other food or foods of a harmful nature.

(d) When obtained from animals whose attendants are affected with or have been exposed to any contagious or infectious disease or have any local or general pathologic condition that might cause them to be a menace to the public health.

(e) When placed in unsterilized or unsanitary bottles, cans, cartons, or other packages or containers.

(f) When drawn from animals suffering with splenic fever, anthrax, tuberculosis, or other contagious or infectious disease or from animals suffering with any local or general pathologic condition.

SEC. 11. *Adulterated milk.*—Milk shall be deemed adulterated and unwholesome:—

(a) When it contains less than $12\frac{1}{2}$ per cent total milk solids.

(b) When it contains less than $3\frac{1}{2}$ per cent of butter or milk fat.

(c) When it contains more than $87\frac{1}{2}$ per cent of water or other liquids.

(d) When water, preservatives, or any other liquid or substance has been added, excepting cream, which may be added to milk, low in butter or milk fat, in order to raise butter or milk fat content to comply with the provisions of this ordinance of $3\frac{1}{2}$ per cent.

SEC. 12. *Adulteration of cream.*—Cream shall be deemed adulterated when it contains less than 18 per cent of pure butter fat or when preservatives, powdered whole milk, powdered skimmed milk, or other substances whatsoever have been added.

SEC. 13. *Adulteration of buttermilk.*—Buttermilk shall be deemed adulterated when it contains less than $8\frac{1}{2}$ per cent of solids or when preservatives or any other substance has been added. Buttermilk must be produced from grades A or B whole milk as herein outlined, or C whole milk after Pasteurization.

SEC. 14. *Adulteration of butter.*—Butter shall be deemed adulterated when it contains less than 80 per cent of butter or milk fat or contains more than 16 per cent of moisture or when preservatives, other than common salt, have been added. Harmless coloring matter may be added only on permission of city health officer and then only in such quantities as he may designate.

SEC. 15. *Ice cream and ice cream plants.*—(a) It shall be unlawful for any person, firm, or corporation to manufacture, sell or offer for sale or have in possession, for purpose of selling, any ice cream, ice milk, or other drink, dispensed at

a fountain or otherwise, where milk or cream forms a component part, that is adulterated, impure or unwholesome, or contains any preservative or deleterious substance whatever. Ice cream shall be made from either A or B grade milk.

(b) Ice cream shall contain not less than 10 per cent of butter or milk fat and shall not contain any preservative or other deleterious substances, in quantities to make such ice cream harmful or injurious to public health.

(c) Plants, where ice cream or other milk ices or other products wherein milk or cream compose the component part are processed or manufactured shall at all times be subject to such rules and regulations governing sanitation, storing, packing, and processing, as apply to dairies or milk plants, which produce grade A or B whole milk.

SEC. 16. Inspection of dairies and milk plants, right to inspect plant and products.—(a) It shall be the duty of the city health officer to cause all places where milk or milk products are produced, bottled, processed, handled, or manufactured into any of its by-products, as food for human consumption, to be inspected from time to time, to insure constant obedience of the provisions and requirements of this ordinance.

(b) The city health officer, his assistant, or anyone whom he may designate, representing him, shall have full access, egress, and ingress to any and all places where milk or milk products are produced, stored, handled, processed, or manufactured into other products, where milk or its products form or compose a component part, and to have full access to all wagons, trucks, or other vehicles and to railroad cars or other conveyances of whatever nature, for the purpose of inspection, or otherwise enforcing the provisions and requirements of this ordinance.

SEC. 17. Collection of samples.—The city health officer or his assistants may collect samples of milk, cream, or other milk products from any store, conveyance, dairy, milk plant, or other place where such products are stored, processed, or handled for the purpose of analyzing; not to exceed 1 pint of milk and one-half pint of cream, at any one time, for which sample, the inspector or his assistant or assistants shall pay the regular market price.

SEC. 18. Seals, stamps, placarding, etc.—(a) All milk produced, distributed, or processed by any person, firm, or corporation for the purpose of selling, or distributing, to customers in residence district, to any store, market, hotel, boarding house, restaurant, café, drug store, confectionery, or other eating or drinking place, shall be put up in glass bottles bearing caps or seals on which shall be printed in legible type the name of producer, distributor, or processor and whether such milk is Pasteurized or raw and the grade of milk as A, B, or C. When such milk served or dispensed at any of the above-mentioned public eating or drinking places, the cap or seal from such bottle shall be removed in the presence of the customer.

(b) Milk for cooking or manufacturing purposes only may be put up and delivered in not less than No. 1 tin, aluminum, glass, or crockery receptacles, and must have attached thereto, tags or seals on which shall be plainly stamped, printed, or written the name of producer, distributor, or processor and whether raw or Pasteurized and the grade of milk, as A, B, or C and whether whole or skimmed milk.

(c) It shall be unlawful and constitute a misdemeanor for anyone to alter, deface, erase, or remove any cap, seal, tag, or label with intent to mislead or deceive or cause or procure same to be done.

SEC. 19. Designating kind of products served.—(a) Each and every restaurant, hotel, boarding house, café, fountain, or other eating or drinking place, where whole, skimmed, or butter milk is dispensed or served to the public shall display in bold-type letters not less than 3 inches high and $1\frac{1}{2}$ inches wide, in a conspicuous place, the grade and kind of milk served as "We serve grade A Pasteurized milk" or "We serve grade B raw milk" or "We serve cultured butter milk" as the case may be.

(b) Skimmed milk may be served or dispensed at any of the places mentioned under (a) of this section, in bulk, by displaying a placard, of similar kind and size as outlined in paragraph (a) of this section, reading: "We serve skimmed milk" and provided such milk is produced from grade A or B whole milk as herein outlined, or C whole milk after Pasteurization.

SEC. 20. Pouring of milk on highway.—It shall be unlawful for anyone as deliverer of milk or milk products to pour any milk or milk product from one vessel or receptacle to another vessel or receptacle, on the public highway or on any street or alley or other place excepting inside of building where delivered, after having left the dairy or milk plant where prepared for delivery.

SEC. 21. *Pasteurization of bought milk.*—All milk plants, milk depots, and creameries who buy, process, or distribute milk purchased from producers, in bulk, may distribute such milk to the consuming public only after such milk has been Pasteurized according to regulations set out in section 1, paragraph 20, of this ordinance.

SEC. 22. *Use of tobacco.*—It shall be unlawful for any one engaged in the milking of cows, straining or bottling of milk, or otherwise actually engaged in the handling or processing of milk, to use tobacco in any form, while so engaged.

SEC. 23. *Forbidding dogs, cats, etc., where milk handled.*—It shall be unlawful for the owner, agent, manager, or representative of any dairy, milk plant, creamery, or other establishment where milk or milk products are bottled, handled, or processed to permit in such milk stable or milk room of such dairy or in that portion of milk plant or creamery where milk or milk products are handled or processed any dogs, cats, chickens, or other fowls, horses, or other animals other than the cow or cows or goats, as the case may be, producing the milk for such establishment.

SEC. 24. *Testing of milk and milk products.*—During each grading period, which shall not exceed four months, at least four samples of milk or cream, from each dairy or dairy farm, milk plant, depot, or creamery where whole milk or cream is sold, for public consumption, shall be tested by the city health officer. Samples of milk or cream from stores, cafes, restaurants, fountains, markets, hotels, boarding houses, or other places where milk products are sold, served or dispensed shall be tested as often as the health officer may require. Such tests shall include the determination of the bacterial count made in conformity with the standard methods recommended by the American Public Health Association, and may include such other chemical, physical, or bacteriological examinations or determinations as the health officer may deem necessary, for the detection of adulteration or other conditions. Notices of bacterial counts shall be given to the producer or distributor concerned, as soon as made, or to any interested person, on request. Samples may be taken by the Health Officer at any time, prior to the final delivery of the milk or milk products. Proprietors of stores, cafes, restaurants, fountains, and similar places, where milk or milk products [are] sold, served, or dispensed, shall upon request, furnish to the city health officer the name or names of such producers or distributors, from whom their milk is obtained.

SEC. 25. *Grading period.*—At any time between regular announcements of milk grades, which shall be January 1, May 1, and September 1, of each year, any producer or distributor of milk or milk products may make application for regrading of his product.

In case the applicant's existing low grade is owing to excessive bacterial count, said application must be supported by at least two bacteriological examinations made subsequent to the end of the previous grading period and indicating that the quality of the applicant's output has improved since the last grading announcement and conforms to the requirement of a higher grade. The samples on which the said two analyses are made may be brought to the health department laboratory by the applicant.

Upon receipt of a satisfactory application, the health officer will make at least four bacteriological analyses upon samples collected by the health officer of the applicant's output within the period of not less than two weeks and not more than three weeks of the date of the application. The health officer shall award a higher grade immediately in case the said four analyses indicate the necessary quality.

In case the applicant's existing low grade is owing to a violation of an item of sanitation other than bacterial count or lack of equipment necessary under such grade such application must be accompanied by a statement signed by the applicant to the effect that the violated item of sanitation has been conformed with.

Within one week of the receipt of such an application, the health officer shall make a reinspection of the applicant's establishment, and, in case the finding justifies, shall award a regrading.

At any time between the regular announcements of milk grades the health officer may lower the grade of any milk producer or distributor if as a result of inspection or milk analyses a lower grade shall be justified in accordance with the terms of this ordinance.

SEC. 26. *Milk plants to keep record of purchases of milk.*—All distributors, milk depots, milk plants, or creameries shall keep a record of all purchases of milk or milk products from any and all sources, which record shall be open to the city health officer, or his assistants, and shall give the name or names of all parties.

furnishing such milk, with addresses, the amount, kind, and butter fat test of such milk and any other information that might be desired by the health officer.

SEC. 27. Grading of milk and cream.—At least once every four months the city health officer shall announce through the daily press the grades of all milk and cream supplies delivered by all producers and distributors ultimately consumed within the city of Amarillo, Tex. Said grades shall be based upon the following standards: The grading of cream being identical with the grading of milk except that the permissible bacterial limits shall be five times that of milk, for the same grade.

SEC. 28. Notification of disease.—Any producer or distributor of milk or milk products, excepting those products excepted in paragraph (a) of section 3 of this ordinance, who employs help in such production, distributing, handling, or processing shall within 24 hours, notify the city health officer of any case of sickness, either in him or herself or any of his or her employees, of any suspected contagious or infectious disease that occurs.

SEC. 29. Delivery.—Delivery of all milk or milk food products, excepting those products excepted in paragraph (a) of section 3 of this ordinance, shall be made, and be maintained at a temperature not to exceed 50° F., until such delivery is made, and such vehicle shall have permit numbers and name of dairy, milk depot, or creamery distributing same plainly printed or painted in large bold-faced letters on either side of such vehicle. Exception is made herein permitting the delivery of Grade B milk at temperature of 60° F.

SEC. 30. Grade A raw milk.—Grade A raw milk is milk whose average bacterial count as determined under section 24 of this ordinance does not exceed 50,000 per cubic centimeter, and which is produced upon dairy farms conforming with all of the following items of sanitation:

COWS

(1) A physical examination and tuberculin test of all cows shall be made before any milk therefrom is sold and at least once every 12 months thereafter, by a veterinarian approved by the State of Texas and the city health officer. A certificate signed by the veterinarian, and filed with the city health officer, shall be the only valid evidence of the above test. Every diseased animal shall be removed from the herd at once, and no milk from diseased cows shall be offered for sale. All reacting animals shall be isolated at once and immediately excluded from the premises and shall be branded with the letters "T" or "T B" on the left jaw and removed at once and slaughtered under the direction of the city health officer. Each letter, in the brand, shall be not less than 2 inches high and 1½ inches wide.

DAIRY BARNS

(2) *Lighting.*—All dairy barns shall have at least 4 square feet of window space for each animal, and all openings screened.

(3) *Air space.*—All dairy barns shall have at least 500 cubic feet of air space per cow.

(4) *Floors.*—Floors and gutters of all dairy barns shall be constructed of concrete, brick, or other impervious and easily cleaned material approved by the city health officer and shall be graded to drain properly, in covered pipe or drain, at least 50 feet from such barn and shall be kept clean and in good repair.

(5) *Walls and ceilings.*—The walls and ceilings of all dairy barns shall be white-washed once each year or painted once every two years, or finished in a manner approved by the city health officer, and shall be kept clean and in good repair. In case hay or other feed stuffs are stored above the barn the ceiling shall be tight.

(6) *Cow yard.*—All cow yards shall be graded and drained as well as practicable, and kept clean.

(7) *Manure disposal.*—All manure shall be removed at least 50 feet from barn and stored or disposed of in such manner as best to prevent the breeding of flies therein and prevent the odors therefrom from permeating barn or milk room.

MILK HOUSE OR ROOM

(8) *Construction.*—There shall be provided a separate milk house or milk room for the handling and storage of milk provided with a tight floor of concrete, brick, or other impervious material and properly drained to a distance outside sufficient to keep odors therefrom reentering such milk room. The walls and ceiling of the

milk house or room shall be of such construction as to permit easy cleaning and shall be painted at least once each year or finished in a manner approved by the city health officer. The milk house or room shall be well lighted and all openings effectively screened to prevent the entrance of flies, and shall be used for no other purpose than the handling and storage of milk or milk products and other operations incident thereto. The cleaning and other operations shall be so located and conducted as to prevent any contamination, one to the other.

The milk room shall not open directly into the barn or into any other room used for sleeping or domestic purposes. No chicken house, pig pen, horse stable or other menacing or unsanitary building or condition will be permitted closer than 75 feet from such milk house or room. Ample running water shall be supplied to this room.

(9) *Cleanliness.*—The floors, walls, ceilings, and equipment of the milk house or room shall be kept clean at all times.

TOILET

(10) Every dairy farm shall be provided with a sanitary toilet constructed and operated in accordance with the ordinances of the city of Amarillo, Tex.

No outside sanitary privy shall be located or sewage effluent be discharged within 75 feet of any dairy barn, milk house or room, or source of water supply.

WATER SUPPLY

(11) The water supply shall be easily accessible, adequate, and of a safe and sanitary quality, and shall be piped to both barn and milk room for cleaning and other purposes.

UTENSILS

(12) *Construction.*—All containers or utensils used in the handling or storage of milk or milk products must be of such construction as to be easily cleaned and must be in good repair. Joints and seams shall be soldered flush. All milk pails shall be of a narrow mouth design, approved by the city health officer.

(13) *Cleaning.*—All containers and other utensils used in the handling and storing or transportation of milk and milk products must be thoroughly cleaned by rinsing with clean water, after each usage, scrubbing in an alkaline solution, and rinsing with clean water.

(14) *Sterilization.*—All containers and other utensils used in the handling, storage, or transportation of milk or milk products shall, between each usage, be sterilized with steam for at least 20 minutes in an oven especially constructed for the sterilization of such containers and utensils.

(15) *Storage.*—All containers and other utensils used in the handling, storing, or transportation of milk or milk products shall be stored so as not to be contaminated until again used.

(16) *Handling.*—After sterilization no container or other milk or milk product vessel or utensil shall be handled in such a manner as to permit any part of the person or clothing to come in contact with any surface with which milk or milk products come in contact.

MILKING

(17) *Udders and teats.*—The udders and teats of all milking cows shall be cleaned and sponged with water containing chloride of lime or some other approved disinfectant and dried with a clean cloth immediately before milking.

(18) *Flanks.*—The flanks of all milking cows shall be kept free of visible dirt at the time of milking.

(19) *Milkers' hands.*—Milkers' hands shall be clean and rinsed in water containing chloride of lime or some other approved disinfectant and dried with a clean towel immediately before milking and shall be kept in this condition all during the milking process.

(20) *Clean clothing.*—Clean outer garments shall be kept on hand at all times, to be used during milking and if for any reason such garments shall become soiled during the milking process to such an extent as to endanger or contaminate the milk, they shall then and there be changed to clean ones.

(21) *Milk stools.*—Milk stools shall be kept clean at all times.

(22) *Removal of milk.*—Each pail of milk shall be removed immediately from barn to milk house or room. No milk shall be strained in the dairy barn.

COOLING

(23) Milk must be cooled within one hour after milking to 50° F. or less and maintained at or below that temperature until delivered, unless it is delivered to a milk plant, for Pasteurization or separation, in which case it must be cooled or Pasteurized within two hours of the time of production.

BOTTLING AND CAPPING

(24) Capping shall be done by machine and caps shall be protected at all times, from contamination by dust, flies or other insects or vermin.

PERSONNEL

(25) *Health certificates.*—Every person whose work brings him or her in contact with the production, handling, storage, or transportation of milk or milk products shall hold a certificate from the city health officer certifying to the fact that within six months, laboratory and other examinations have been made indicating that said person is free from tuberculosis and is not a carrier of typhoid fever or diphtheria and does not have any contagious or infectious disease, capable of being spread through milk supplies or does not have any local or general pathological condition that might make such a person a menace to the public health.

GRADE B RAW MILK

Grade B raw milk is milk the average bacterial count of which at no time prior to delivery exceeds 200,000 per cubic centimeter and which is produced upon dairy farms conforming to all of the items of sanitation, equipment, and methods required for producing grade A milk except such changes in requirements will be permitted as outlined in paragraphs below:

- (2) Between 2 and 4 square feet.
- (3) Between 300 and 500 cubic feet.
- (8) Permit washing of containers and utensils in room where bottling is done if other conditions met.
- (12) Open top milk pails and other containers with unsoldered seams.
- (14) Permit steam or boiling water for sterilization, provided rinsed in chloride of lime or other approved disinfecting solution thereafter.
- (17) Permit washing and drying of udders and teats without any disinfectant, provided bacterial count average can be met.
- (19) Permit washing and drying of milkers' hands without using disinfectant, provided bacterial count average can be met.
- (23) Cooling permitted to not exceed 60° F.
- (24) Capping permitted by hand, provided hands cleaned and disinfected and caps kept protected from dust, flies, and other insects or vermin.

Cleanliness or sanitation shall in no case be omitted in producing this grade of milk.

Delivery of this grade of milk in bulk to a milk plant, milk depot, or creamery may be made in an open vehicle by being protected with suitable covering as described in section 8 of this ordinance.

GRADE C RAW MILK

Grade C raw milk is milk the average bacterial count of which at no time prior to delivery exceeds 1,000,000 per cubic centimeter and which is produced on dairy farms conforming with all the requirements as outlined for grade A milk, except such permitted changes in requirements as outlined in paragraphs below:

- (2) Less than 2 square feet of light per cow.
- (3) Less than 300 cubic feet of air space per cow.
- (5) Not required.
- (8) Ordinary, tight wooden, milk or straining room all necessary and which does not conform to that of grade A or B.
- (11) Milk room may not be supplied with water except that carried.
- (12) Open top milk pails and other containers with unsoldered seams.
- (13) Thorough washing and cleaning alone necessary.
- (14) All containers and other vessels may be scalded in hot water.
- (17) Brushing of udders and teats permitted, except any extra dirty or filthy condition of such to be washed.

- (18) Not required.
- (19) Permit washing and drying of milkers' hands without disinfecting.
- (20) Not required.
- (21) Not required.
- (23) No cooling required, provided bacterial count average met.
- (24) Capping permitted by hand if hands thoroughly washed prior thereto and provided this grade of milk is bottled, for cooking or manufacturing purposes.

Delivery may be made in open top wagons or vehicles, provided containers protected from dust, flies, and other insects with clean, cloth covering, approved by city health officer.

Milk of this grade, permitted for cooking or manufacturing purposes only, unless Pasteurized, when it may become grade C Pasteurized milk, provided that the bacterial count average, after Pasteurization, does not exceed 500,000 per cubic centimeter.

Cleanliness or sanitation shall in no case be omitted in producing this grade of milk.

GRADE A PASTEURIZED MILK

Grade A Pasteurized milk is grade A raw milk which has been properly Pasteurized, cooled, and bottled in a milk plant conforming in sanitation, equipment, and methods as set forth in this ordinance concerning the production, storing, bottling, handling, processing, and delivering of milk or milk products and which at no time after Pasteurization and until delivered exceeds an average of 25,000 bacteria per cubic centimeter.

GRADE B PASTEURIZED MILK

Grade B Pasteurized milk is grade B raw milk which has been properly Pasteurized, cooled, and bottled in a milk plant conforming in sanitation, equipment, and methods as set forth in this ordinance concerning the production, storing, bottling, handling, processing, and delivering of milk or milk products and which at no time after Pasteurization and until delivered exceeds an average of 100,000 bacteria per cubic centimeter.

GRADE C PASTEURIZED MILK

Grade C Pasteurized milk is grade C raw milk which has been properly Pasteurized, cooled, and bottled in a milk plant conforming in sanitation, equipment, and methods as set forth in this ordinance, concerning the production, storing, bottling, handling, processing, and delivering of milk or milk products and shall at no time after Pasteurization and until delivery exceed an average of 500,000 bacteria per cubic centimeter.

MIXED GRADES OF RAW MILK PASTEURIZED

Mixed grades of raw milk, after Pasteurization, shall take the grade of the lowest grade of the mixture.

NUMBER OF BACTERIA TO BE STATED ON CONTAINER

Bottle caps, tags, seals, or other devices used for marking, labeling, tagging, or sealing any container of whole milk or cream, in addition to bearing the grade symbol and whether such milk or cream is "raw" or "Pasteurized," shall also state thereon the largest number of bacteria per cubic centimeter, permitted for that grade of such product.

SEC. 31. General requirements.—

(1) *Overflow milk.*—Overflow milk which has become contaminated by machinery at milk depots, milk plants, or creameries shall not be sold for human consumption.

(2) *Re-Pasteurization.*—The re-Pasteurization of whole milk is hereby prohibited; however, any returned whole milk, if still sweet, may be separated and the cream therefrom re-Pasteurized for sale.

(3) *Spitting on floor.*—Spitting on the floor of any milk house or room, milk plant or creamery, in that portion where milk or milk products are being prepared, processed, or handled in any manner is positively prohibited.

(4) *Proscribed milk.*—Milk which does not conform to any of the grades described in this ordinance shall not be sold in the city of Amarillo, Tex.

(5) *Future dairies or milk plants.*—Future dairies or milk plants, from which milk or any of its products, is to be supplied to the city of Amarillo, Tex., shall be constructed and conform, in every respect, to the requirements as set out in this ordinance.

(6) *Country butter.*—Country butter, or butter produced by farmers, for sale in the city of Amarillo, Tex., shall be produced from cows free of tuberculosis or other contagious or infectious disease and shall be kept and handled in a clean and sanitary manner, at all times, and must meet the requirements for butter as outlined and defined in section 1, paragraph 5, of this ordinance. Such butter must be stamped or have plainly written on package or carton wherein contained, "Butter from uninspected dairy," and any store, market, or other place handling such butter shall sell or offer same for sale only as "butter from uninspected dairy," and any hotel, boarding house, café, restaurant, or other place where such butter is served or dispensed, shall display a placard, in a conspicuous place, printed thereon in bold type letters, not less than 2 inches high and 1 inch wide, "We serve butter from uninspected dairy."

Country butter produced in compliance with this ordinance, as to stables, milk room, equipment, methods of handling, etc., and meeting all the requirements of this ordinance, as outlined herein for grades A or B whole milk, may be stamped or labeled as "Butter from inspected dairy," if so desired, in addition to name of producer, which must be shown, on package or carton thereof.

(7) *Grading of butter.*—Butter either manufactured at a creamery or by farmers will not be subject to grading, under the terms of this ordinance, as is whole milk or cream and packages or cartons will not be required to bear the grade symbol as A, B, or C butter, as the case might be; however, butter produced from cream that is produced below the grade of B as outlined in this ordinance shall be Pasteurized prior to being made into butter or shall be classed as "butter from uninspected dairy."

(8) *Disinfecting and sterilizing of returned utensils.*—Bottles, cans, or other vessels or utensils returned from residences, cafés, restaurants, hotels, boarding houses, or other places where there is or has recently been a contagious or infectious disease shall be disinfected and then sterilized with steam for at least 20 minutes, prior to their being reused as a container for milk or milk products.

SEC. 32. Any person, firm, association, or corporation who shall violate any provision or provisions of this ordinance shall be fined not less than \$10 nor more than \$200, or have any milk permit revoked that he, she, or they may be operating under, as set forth in section 3 of this ordinance, or both such fine and revocation of permit.

SEC. 33. *Repeal and date of effect.*—All ordinances and parts of ordinances in conflict with this ordinance are hereby repealed, and this ordinance shall be in full force and effect immediately upon its adoption and its publication as provided by law.

SEC. 34. *Unconstitutionality clause.*—Should any section, paragraph, sentence, clause, or phrase of this ordinance be declared unconstitutional or invalid for any reason the remainder of said ordinance shall not be affected thereby. Each and every violation of the provisions of this ordinance shall constitute a separate offense.

BALTIMORE, MD.

Milk—Production, Handling, and Transportation. (Reg. Commissioner of H., Revised to April 15, 1926)

Pursuant to the power conferred upon the commissioner of health by ordinance 103, approved May 6, 1908, the following regulations governing the handling of milk on dairy farms, in transit, and in Baltimore city are hereby established:

PERMIT

(1) Each dairy farm before shipping any milk or milk products to Baltimore must apply to the Baltimore City Health Department for a permit, stating the products to be handled and consignee. No producer may ship such milk or its products until his application for permit has been approved by the commissioner of health. However, the commissioner of health, or director, bureau of chemistry and food, (or assistant director) may waive the requirement for dairy farm permit in exceptional cases when they are satisfied that the proper sanitary conditions of production and handling are met or when as in an emergency the public interest demands such waiver.

(2) Milk permit must be hung in a protected place in the dairy house and be available at all times to the inspector.

CONDITIONS AFFECTING MILK AT SOURCE

Buildings and premises:

(3) All stables, buildings and premises where milk and milk products are produced, handled or sold must be maintained at all times in a clean and orderly manner.

(4) All buildings used for stabling cows during milking shall be well lighted, ventilated, and drained; stalls or proper stanchions for holding the cows must be so arranged as to allow adequate space for each milk cow and must be provided with good and sufficient facilities for feeding the animals in a cleanly manner.

(5) Stable floors must be properly graded and well drained. Gutters should be made of concrete.

(6) Ceilings should be tightly constructed to prevent dust, etc., from falling through and must be kept free from dirt, cobwebs, etc.

(7) The floors of the cow stalls must be so graded and kept that they will be clean and sanitary.

(8) Stables must be whitewashed at least once a year unless the walls are kept painted or are of smooth finish.

(9) Manure shall be taken from the milking stables daily, preferably direct to the field. The open-shed method is acceptable if kept in a sanitary condition, properly bedded and free from puddles of mud. Manure must be handled and stored in such a manner as to preclude cows from wading through it in passage to and from barn and watering trough. The liquid matter must be absorbed and removed daily and at no time be allowed to overflow or saturate the ground under or around the cow barn or drinking trough.

(10) No milk handling shall be done in any kitchen, washroom, workshop or inhabited room, nor in proximity to any water-closet, privy, cesspool, or urinal, nor in any room or space which is not of such size and construction as to permit the separation of all milk and milk products, both in the process of handling and storing them, from all probable sources of contamination either by dirt, noxious gases, infective organisms or substances, or anything liable to alter the quality of such milk or milk products.

(11) The water supply on premises where milk is produced must be adequate, protected from contamination, and free from pollution.

(12) Privies on dairy farms must be fly proof and provided with a water-tight receptacle for the excreta. The excreta shall be removed frequently and buried at least 2 feet deep at a point where it can not contaminate the water supply.

(13) All milk-producing farms must be provided with a conveniently located dairy house, which may, however, be a so-called spring house, free from contaminating surroundings, screened against flies and other such contaminating insects, provided with concrete floor and adequate light and ventilation, properly equipped with sanitary tank for cooling and handling milk and entirely separate from barn or stable.

Cows:

(14) Cattle should be healthy. Any cow which is plainly in a diseased condition or emaciated for want of feed shall be immediately removed from the herd and her milk kept separate and not sold until her condition or her milk has been accepted by the health department.

(15) Cows must be kept clean. The udders and tails are to be clipped every fall and more frequently if necessary. Just prior to milking the udders and flanks must be wiped with a clean damp cloth.

(16) All milk, after January 1, 1926, brought or sent into this city for sale must be from herds tuberculin tested under Federal and State supervision or from herds whose owners have filed their application and agreements and have not refused to submit their herds to the test at the time designated by the authorities in charge.

The commissioner of health will at his discretion exclude from the Baltimore market the milk from any herd whose owner refuses to submit his herd to the test at such time as may be designated by those in charge of this work.

All reactors must be immediately removed from the premises.

All applications or agreements to place herds under State and Federal supervision must be placed on file with the Maryland State Board of Agriculture within 60 days of date of said notice.

When an agreement is placed on file, test must be made at a time designated by the Federal or State authorities.

Utensils:

(17) All machinery, utensils, etc., which come in contact with the milk shall be thoroughly scrubbed and washed and steamed with boiling water or otherwise cleaned by an approved method within three hours after use.

(18) All cans shall be rinsed with hot water or steamed before they are refilled.

(19) Small top milking pails are to be used exclusively.

(20) All milk cans must have permit numbers in figures 1 inch high upon the shoulders of the cans. All new milk cans after February 1, 1922, must have this number on metal plates soldered to shoulder of cans or otherwise permanently affixed thereto.

Milking:

(21) Milking must be done with clean dry hands or with a properly sterilized mechanical milker.

(22) Milkers should milk in clean clothes.

Cooling milk:

(23) Milk must be removed as soon as drawn to a clean place and be cooled immediately and maintained at a temperature of not more than 60° F. prior to the delivery to the transportation agent.

(24) If milk is delivered to a cooling station, receiving station or creamery, the farmer need not cool his morning's milk if the milk is delivered before 9 o'clock in the morning between November 1 and March 31, or if the milk is delivered before 8 o'clock in the morning from April 1 to October 31.

Hauling:

(25) Milk containers must be properly covered during transit from farm to shipping point by placing the covers immediately over the containers.

(26) Milk containers must be properly protected from direct rays of sun while awaiting arrival [of] transportation agent.

General:

(27) Every operator of a dairy farm shall immediately notify the health department of the presence of any communicable disease on his farm or among the cattle or the milk handlers.

(28) Milk must not be held over from one day to another, but must be shipped to dealer within 15 hours after production.

CONDITIONS IN TRANSIT

Receiving platforms for carriers and other transportation agencies:

(29) All points at which milk and cream are regularly assembled for shipment to Baltimore must be provided with platforms large enough to hold all empty cans discharged at that point. Due care should be exercised by the carrier or other transportation agency to protect the milk from exposure to the sun while awaiting the arrival of trains or other conveyance.

Conveyances:

(30) All conveyances for hauling milk or milk products to Baltimore, Md., must be covered to protect the lading from exposure to sun and dust. In no case shall it be permissible to transport contaminating commodities, particularly livestock or poultry, along with milk or milk products, when such commodities come in direct contact with the milk cans or other containers.

Prompt shipment:

(31) No milk for direct shipment to Baltimore should be delivered to an assembling point longer than one-half hour before schedule of arrival of conveyance.

Temperature:

(32) All transportation agents must effectively ice or otherwise protect milk in transit to the city of Baltimore, in a manner that will not allow it to increase in temperature above 60° F. upon its arrival at point of delivery in the city of Baltimore.

Handling:

(33) Milk cans while in transit must be properly covered or otherwise protected from dirt.

(34) Cans full of milk or milk products should not be superimposed directly upon each other when such treatment injures the cans.

(35) All cans, whether full of milk or empty, must be placed upon the platform or an equivalent receiving floor and not thrown or dropped on the ground.

(36) Cans must be handled with due regard to their perishable character and must not be thrown from conveyances to the ground or otherwise mistreated.

Bacterial content:

(37) Milk shall not contain more than 1,000,000 bacteria per cubic centimeter at the time of its delivery in Baltimore.

CONDITIONS IN THE CITY

(38) Milk or cream shall not be allowed to remain unprotected from direct rays of the sun.

(39) All milk and cream shall be removed from the railroad platform or depot immediately after offer or delivery by the carrier.

(40) If such offer or delivery is more than 15 minutes later than schedule for truck and more than 30 minutes later for railroad, the transportation agent is responsible for any deterioration in condition of the milk due to such delay; but the dealer is responsible for such deterioration resulting from delay when the truck maintains its delivery within 15 minutes after schedule time of arrival and the railroad within 30 minutes after schedule time of arrival.

(41) All milk and cream in the possession of milk dealers or distributors shall be maintained at a temperature of not more than 60° F. at all times prior to Pasteurization.

(42) Milk containers in transit from railroad terminals to city plants must be properly covered by placing the covers immediately over the milk cans.

CANS

Conditions:

(43) All cans must be in good condition. They will be condemned when as follows:

- (a) When inside tin coating is worn off to any considerable extent.
- (b) When badly rusted in interior.
- (c) When badly dented or with pockets about neck.

Type:

(44) Cans should be used which have a sloping shoulder easy to be cleansed, with wide neck and over-hanging lid. (No new cans of the so-called Baltimore or similar types will be allowed after July 1, 1923.)

Cleanliness:

(45) Within two hours after emptying, milk cans and lids or covers must be cleaned and sterilized by the dealer. Upon receipt at farm, cans must be inverted on approved rack at dairy house, screened if placed outdoors.

Cream—Production, Handling, Grades, and Pasteurization. (Reg. Commissioner of H., 1926)

Pursuant to the power conferred upon the commissioner of health by section 59-A, ordinance 272, June 1, 1917, the following regulations governing the production and handling of cream on dairy farms, in transit, and in Baltimore City is [are] hereby established:

1. No cream shall be shipped to Baltimore as being of the specified grade higher than that for which the concern making shipment holds a permit issued by the health department of the city of Baltimore.

2. Beginning January 1, 1927, all grades of cream must be produced from only such milk as meets the health department's present regulations for the production and handling of that grade of fluid milk offered for sale in Baltimore City.

3. All cream must be mechanically separated by a centrifugal machine or other quick-acting device. Gravity separated cream is prohibited.

4. All grades of cream shall comply in every respect with the bacterial standards now required for that grade of milk from which it is required that such cream be produced.

5. Pasteurized cream shall be cream which has been uniformly heated to a temperature between 142° F. and 150° F., and maintained at that temperature for not less than 30 minutes, and cooled immediately to a temperature of 45° F. or less: *Provided*, That the following Pasteurization procedure may be used:

Pasteurized cream shall be cream which has been uniformly heated to a temperature of 142° F., or higher, and maintained at that temperature for not less than 30 minutes. But the period of holding may be reduced one minute for each additional degree of uniform temperature of heating of such cream, with a minimum period of holding of five minutes. Such cream shall be cooled immediately after Pasteurization to a temperature of 45° F. or less, unless the same is to be used for buttermilk or other ripened milk products.

6. All cream for bottling purposes must be Pasteurized in the plant where it is bottled.

7. The label for standard Pasteurized cream must bear the words, "Standard cream Pasteurized," and the name and address of the bottler.

BOSTON, MASS.

Milk—Must Come from Herds Meeting Certain Requirements or be Pasteurized—Pasteurization—Bacteria Content. Ice Cream—Requirements Governing Milk or Cream Used in. (Order H. Commissioner, March 7, 1924)

Ordered, That the regulations for the sale and care of milk and milk products, adopted April 15, 1915, by the health commissioner under the provisions of Revised Laws, chapter 75, section 65 (now General Laws, chapter 111, section 122), be, and the same are hereby, amended by adding at the end thereof the following new article, to be entitled "Article XII, Tuberculin Tested and Accredited Herds; Pasteurization."

ARTICLE XII.

TUBERCULIN TESTED AND ACCREDITED HERDS; PASTEURIZATION.

SECTION 1. On and after May 31, 1924, all raw milk, whether certified or not, offered for sale in the city of Boston, shall be drawn exclusively from tuberculin tested and accredited herds, or tested herds on the way to accreditation, under Federal supervision, and shall, when offered for sale, contain not more than 100,000 bacteria per cubic centimeter. A license to sell such milk shall be procured from the health commissioner and at the time of the application for a license to sell such milk the dealer shall make known to the health commissioner the results of all tests during the previous year upon animals owned by him or under his control.

SEC. 2. On and after May 31, 1924, all milk not meeting the requirements as contained within section 1, before being offered for sale, shall be Pasteurized and shall comply with the following requirements: Shall be natural cow's milk not more than 72 hours old when Pasteurized, shall be subject for a period of not less than 30 minutes to a temperature of not less than 140° F. and not more than 145° F.; and shall be immediately cooled to a temperature of 50° F. or lower.

SEC. 3. The heaters or Pasteurizers used in the Pasteurization of milk shall be equipped with suitable automatic time and temperature recording devices indicating to what temperature the milk has been heated, the length of time it was subject to such heat, as well as the time when such record was made. The record so made shall be preserved for one year by every milk dealer and shall be open to the inspection of the health commissioner or his authorized agent whenever requested.

SEC. 4. No Pasteurizing equipment shall be used for the Pasteurization of milk that is not approved by the health commissioner or his authorized agent.

SEC. 5. All cream and skimmed milk offered for sale not obtained from milk meeting the requirements of section 1, shall be Pasteurized in accordance with the provisions of section 2, or obtained from Pasteurized milk.

SEC. 6. All ice cream offered for sale shall be manufactured from cream obtained from milk meeting the requirements of section 1, or from milk meeting the requirements of section 1, or from Pasteurized milk.

SEC. 7. No milk offered for sale shall be Pasteurized more than once.

SEC. 8. Pasteurized milk when offered for sale shall contain not more than 100,000 bacteria per cubic centimeter.

CHATTANOOGA, TENN.

Milk and Milk Products—Production, Handling, and Sale. (Ord. 1787, June 2, 1925)

SECTION 1. That the following definitions shall apply in the interpretation and enforcement of this ordinance:

(a) *Milk*.—Milk is hereby defined to be the whole, fresh, clean, lacteal secretion obtained by the complete milking of one or more healthy cows, properly fed and kept, excluding that obtained within 15 days before and 5 days after calving, or such longer period as may be necessary to render the milk practically

colostrum free; which contains not less than $8\frac{1}{2}$ per cent of solids not fat and not less than $3\frac{1}{4}$ per cent of milk fat.

(b) *Milk fat or butter fat*.—Milk fat or butter fat is the fat of milk and has a Reichert-Meissel number of not less than 24 and a specific gravity of not less than 0.905 (40° C.).

(c) *Cream*.—Cream, sweet cream, is that portion of milk, rich in milk fat, which rises to the surface of milk on standing or is separated from it by centrifugal force, is fresh and clean, and which contains not less than 18 per cent of milk fat: *Provided*, That cream having less than 18 per cent milk fat shall be known as substandard cream.

Cream having less than 30 per cent milk fat shall be known as light cream.

Cream having more than 30 per cent and less than 40 per cent milk fat shall be known as heavy cream, and cream having more than 40 per cent milk fat shall be known as extra heavy cream.

Whipping cream and manufacturing cream are creams intended for whipping or manufacturing purposes, and the grade of same shall not be based on bacterial count.

(d) *Skimmed milk*.—Skimmed milk is milk from which substantially all the milk fat has been removed.

(e) *Adjusted milk*.—Adjusted milk is milk in which the percentage of milk fat has been adjusted by the addition or removal of cream or skimmed milk.

(f) *Buttermilk*.—Buttermilk is the product which remains when milk fat is removed from milk or cream, sweet or sour, in the process of churning. It contains not less than 8.5 per cent of milk solids not fat.

(g) *Cultured buttermilk*.—Cultured buttermilk is the product resulting from the souring or treatment by a lactic acid culture of milk or milk products.

(h) *Evaporated milk (unsweetened)*.—Evaporated milk (unsweetened) is milk from which a considerable portion of water has been evaporated, to which sugar has been added, and which contains not less than 28 per cent milk solids and not less than 8 per cent milk fat.

[No paragraph (i).]

(j) *Condensed skimmed milk*.—Condensed skimmed milk is skimmed milk from which a considerable portion of water has been evaporated, and which contains not less than 20 per cent of milk solids.

(k) *Powdered (dried) whole milk*.—Powdered whole milk is milk from which substantially all of the water has been removed, and which contains not less than 26 per cent milk fat, and not more than 5 per cent of moisture.

(l) *Powdered (dried) skimmed milk*.—Powdered skimmed milk is skimmed milk from which substantially all of the water has been removed, and which contains not more than 5 per cent of moisture.

(m) *Recombined milk*.—Recombined milk is a substance produced by recombining powdered whole milk, powdered skimmed milk, condensed or evaporated whole milk, or skimmed milk, and milk fat, with water, and shall conform in milk fat percentage and bacterial counts to the provisions of this ordinance relating to milk.

(n) *Milk products*.—Milk products shall be taken to mean and include cream, skimmed milk, adjusted milk, buttermilk, cultured buttermilk, evaporated milk (unsweetened), condensed milk (sweetened), condensed skimmed milk, powdered whole milk, powdered skimmed milk, and recombined milk.

(o) *Pasteurization*.—The term "Pasteurization," "Pasteurized," "Pasteurize," and similar terms shall be taken to refer to the process of heating milk, or milk products, to a temperature of not less than 142° F., and holding at such temperature for not less than 30 minutes, in Pasteurization apparatus approved by the health officer, the temperature and time being automatically recorded by a temperature and time recording device approved by the health officer.

(p) *Adulterated milk and milk products*.—Adulterated milk and milk products are milk and milk products defined in this ordinance which do not conform with the definitions contained in this ordinance.

(q) *Milk producer*.—A milk producer is any person, firm, or corporation who owns or controls one or more cows, a part or all of the milk from which is for sale, or sold or delivered to another person, firm, or corporation.

(r) *Milk distributor*.—A milk distributor is any person, firm, or corporation which has in possession, offers for sale, sells, or delivers to another any milk or milk product for consumption or manufacturing purposes.

(s) *Dairy or dairy farm*.—A dairy or dairy farm is any place or premises where one or more cows are kept, a part or all of the milk or milk products from which is sold or delivered to any person, firm, or corporation.

(t) *Milk plant*.—A milk plant is any place, or premises, or establishment where milk or milk products are collected, handled, processed, stored, bottled, Pasteurized, or prepared for distribution.

(u) *Health officer*.—The health officer shall be the health officer of the city of Chattanooga in person, or his authorized representative.

(v) *Average bacterial count*.—Average bacterial count shall be taken to mean the average bacterial count of all samples taken during the grading period, including at least four samples taken upon separate days.

(w) *Grading period*.—The grading period shall be such period of time as the health officer may designate, within which grades shall be determined for all milk and cream supplies: *Provided*, That the grading period shall in no case exceed six months.

(x) *Disinfectant*.—A disinfectant is any germicidal substance approved by the health officer.

SEC. 2. That it shall be unlawful for any person, firm, or corporation within the city of Chattanooga to produce, sell, offer, or expose for sale, or have in possession with the intent to sell, any milk or milk product which is adulterated or misbranded.

SEC. 3. That it shall be unlawful for any person, firm, or corporation to bring into or receive into the city of Chattanooga, for sale, or to sell or offer for sale therein, or to have on hand any milk or milk products excepting evaporated milk, condensed milk, condensed skimmed milk, powdered whole milk, and powdered skimmed milk, who does not possess an unrevoked permit from the health officer of the city of Chattanooga, and on whose vehicle, or in whose place of business there does not appear in a conspicuous place a placard showing the permit number in figures at least 3 inches high and 1½ inches wide.

Such a permit may be revoked by the health officer upon the violation by the holder of any of the terms of this or any other health ordinance of the city of Chattanooga: *Provided*, That the holder of said permit shall, after complying with such revocation, have the right of appeal to the board of commissioners.

SEC. 4. That all bottles, cans, packages, and other containers inclosing milk or milk products defined in this ordinance shall be plainly labeled or marked with (1) the name of the contents as given in the definitions in this ordinance; (2) the grade of the contents if said contents are graded under the provisions of this ordinance; (3) the word "Pasteurized" if the contents have been Pasteurized; (4) the word "raw" if the contents are raw; (5) the percentage of milk fat if the package or other container incloses adjusted milk.

Every grocery store, restaurant, café, soda fountain, or similar establishment, selling or serving milk shall display in a place designated by the health officer, a card, or cards, furnished by the health officer, stating the grade of the milk at the time when delivered and whether same is raw or Pasteurized.

SEC. 5. That at least once during each grading period the health officer shall inspect every dairy farm producing milk or cream for consumption within the city of Chattanooga, and all milk plants whose milk or cream is intended for consumption within the city of Chattanooga. In case the health officer discovers the violation of any item of sanitation, he shall make a second inspection after a lapse of such time as he deems necessary for the defect to be remedied but not before the lapse of 3 days, and the second inspection shall be used in determining the grade of milk or cream.

One copy of the inspection report shall be posted by the health officer in a conspicuous place upon an inside wall of one of the dairy farm or milk plant buildings, and said inspection report shall not be removed by any person except the health officer. Another copy of the inspection report shall be filed with the records of the health department. In addition, a written notice shall be mailed to or left with the owner or manager in the case of violations.

SEC. 6. That during each grading period at least four samples of milk or cream from each dairy farm and each milk plant shall be tested by the health officer. Samples of milk and cream from stores, cafés, soda fountains, restaurants, and other places where milk products are sold shall be tested as often as the health officer may require. Said tests shall include the determination of the bacterial count made in conformity with the standard methods recommended by the American Public Health Association, and may include such other chemical and physical determinations as the health officer may deem necessary for the detection of adulteration. Notices of bacterial counts shall be given to the producer or distributor concerned as soon as made, or to any interested person on request. Samples

may be taken by the health officer at any time prior to the final delivery of the milk or milk products. All stores, cafés, restaurants, soda fountains, and other similar places shall furnish the health officer, upon his request, the name of the milk distributor from whom their milk is obtained.

Should the market value of any single sample exceed 25 cents the city of Chattanooga shall pay the distributor therefor.

Sec. 7. That at least once every six months the health officer shall announce through the daily press the grades of all milk and cream supplies delivered by all producers or distributors and ultimately consumed within the city of Chattanooga. Said grades shall be based upon the following standards: The grading of cream being identical with the grading of milk except that the permissible bacterial limits shall be multiplied five-fold in each case.

CERTIFIED MILK

Certified milk [is milk] which conforms with the requirements of the American Association of Medical Milk Commissions, and is produced under the supervision of the Medical Milk Commission of the Medical Society of Hamilton County.

GRADE A RAW MILK

Grade A raw milk is milk whose average bacterial count as determined under section 6 of the ordinance does not exceed 50,000 per cubic centimeter, and which is produced upon dairy farms conforming with all of the following items of sanitation:

(1) *Cows—Tuberculosis and other diseases.*—A physical examination and tuberculin test of all cows shall be made before any milk therefrom is sold and at least once every 12 months thereafter by a veterinarian approved by the health officer. A certificate signed by the veterinarian and filed with the health officer shall be the only valid evidence of the above test. Every diseased animal shall be removed from the herd at once and no milk from diseased cows shall be offered for sale. All reacting animals shall be isolated at once and immediately excluded from the premises. All animals failing to pass the tuberculin test shall be branded with the letters "T" or "TB" on the shoulder, hip, or jaw, and removed at once and slaughtered under the direction of the health officer. Each letter in the brand shall be not less than 2 inches high and $1\frac{1}{2}$ inches wide. Herds showing reactors on any test shall be retested within six months, but not before the lapse of 60 days.

(2) *Dairy barns—Lighting.*—All dairy barns shall have at least 3 square feet of window space for each animal.

(3) *Air space.*—All dairy barns shall have at least 500 cubic feet of air space per cow.

(4) *Floors.*—Floors and gutters of all dairy barns shall be constructed of concrete or other impervious and easily cleaned material approved by the health officer and shall be graded to drain properly, and shall be kept clean and in good repair.

(5) *Walls and ceilings.*—The walls and ceilings of all dairy barns shall be whitewashed once each year or painted once every two years, or finished in a manner approved by the health officer, and shall be kept clean and in good repair. In case hay or other foodstuffs are stored above the barn, the ceiling shall be tight.

(6) *Cow yard.*—All cow yards shall be graded and drained as well as practicable, and kept clean.

(7) *Manure disposal.*—All manure shall be removed and stored or disposed of in such manner as best to prevent the breeding of flies therein.

(8) *Milk house or room—Construction.*—There shall be provided a separate milk house or milk room for the handling and storage of milk, provided with a tight floor, constructed of cement or other impervious material and graded to provide proper drainage. The walls and ceilings of the milk house or room shall be of such construction as to permit easy cleaning and shall be painted at least once each year or finished in a manner approved by the health officer. The milk house or room shall be well lighted and all openings effectively screened to prevent the entrance of flies, and shall be used for no other purpose than the handling and storage of milk or milk products and other operations incident thereto. The cleaning and other operations shall be so located and conducted as to prevent any contamination one to the other. The milk room shall not open directly into the barn or into any room used for sleeping or domestic purposes.

(9) *Cleanliness and flies.*—The floors, walls, ceilings, and equipment of the milk house or room shall be kept clean at all times. All means necessary for the elimination of flies shall be used.

(10) *Toilet.*—Every dairy farm shall be provided with a sanitary toilet constructed and operated in accordance with the ordinances of the city of Chattanooga.

(11) *Water supply.*—The water supply shall be easily accessible, adequate, and of a safe sanitary quality.

(12) *Utensils—Construction.*—All containers or utensils used in the handling or storage of milk or milk products must be of such construction as to be easily cleaned and must be in good repair. Joints and seams shall be soldered flush. All milk pails shall be of a narrow mouth design approved by the health officer.

(13) *Cleaning.*—All containers and other utensils used in the handling and storing or transportation of milk and milk products must be thoroughly cleaned by rinsing with clean water after each usage, scrubbing in an alkaline solution, and rinsing with clean water.

(14) *Sterilization.*—All containers and other utensils used in the handling, storage, or transportation of milk or milk products shall between each usage be sterilized with steam.

(15) *Storage.*—All containers and other utensils used in the handling, storage, or transportation of milk or milk products shall be stored so as not to become contaminated until again used.

(16) *Handling.*—After sterilization no container or other milk or milk product utensil shall be handled in such manner as to permit any part of the person or clothing to come in contact with any surface with which milk or milk products come in contact.

(17) *Milking—Udders and teats.*—The udders and teats of all milking cows shall be clean and sponged with a disinfectant immediately before milking.

(18) *Flanks.*—The flanks of all milking cows shall be kept free of visible dirt at the time of milking.

(19) *Milkers' hands.*—Milkers' hands shall be clean, rinsed with a disinfectant and dried with a clean towel immediately before milking. Should the milking operation be interrupted, the milkers' hands must be redisinfectant. Wet-hand milking is prohibited.

(20) *Clean clothing.*—Milkers shall wear clean outer garments during milking.

(21) *Milk stools.*—Milk stools shall be kept clean.

(22) *Removal of milk.*—Each pail of milk shall be removed immediately to the milk house. No milk shall be strained in the dairy barn.

(23) *Cooling.*—Milk must be cooled within one hour after milking to 50° F. or less and maintained at or below that temperature until delivery, unless it is delivered to a milking plant for Pasteurization or separation, in which case it must be cooled or Pasteurized within two hours of the time of production.

(24) *Bottling and capping.*—Capping shall preferably be done by machine. In case capping is done by hand, the hands shall be disinfected in a manner approved by the health officer before the process of capping is begun and after each interruption. Caps not purchased in sanitary containers and kept therein until used shall be kept in dustproof containers and shall be immersed in an approved disinfectant solution immediately before use.

(25) *Personnel—Health certificates.*—Every person whose work brings him or her in regular contact with the production, handling, storage, or transportation of milk or milk products shall hold a certificate from the health officer certifying to the fact that within 12 months laboratory and other examinations have been made indicating that the said person is free of tuberculosis, that said person is not a carrier of typhoid fever, and that said person is free of any disease capable of being spread through milk supplies.

(26) *Notification of disease.*—Notice shall be sent to the health officer within 24 hours by any milk producer or distributor upon whose dairy farm any case of sickness or any infectious, contagious, or communicable disease occurs.

GRADE B RAW MILK

Grade B raw milk is milk the average bacterial count of which at no time prior to delivery exceeds 200,000 per cubic centimeter, and which is produced upon dairy farms conforming with all the items of sanitation required for grade A raw milk except (2), (3), (4), (5), or (6): *Provided*, That cleanliness of the barn and cow yard shall in no case be omitted. Item (23) shall apply except that the cooling temperature shall be changed to 60° F. Item (14) shall apply except that boiling water may be substituted for steam.

GRADE C RAW MILK

Grade C raw milk is milk the average bacterial count of which at no time prior to delivery exceeds 1,000,000 per cubic centimeter, and which is produced upon dairy farms conforming with all of the items of sanitation required for grade B raw milk, except (1), (7), (12), (14), (23), (24), or (25): *Provided, That* cleanliness shall in no case be omitted.

GRADE D RAW MILK

Grade D raw milk is milk which does not meet the requirements of grade C raw milk and the average bacterial count of which does not exceed 5,000,000.

GRADE A PASTEURIZED MILK

Grade A Pasteurized milk is grade A or grade B raw milk which has been Pasteurized, cooled, and bottled in a milk plant conforming with all of the following items of sanitation and the average bacterial count of which at no time after Pasteurization and until delivery exceeds 50,000.

(1) *Building and Equipment—Floors.*—The floors of all rooms in which milk is handled shall be smooth, impervious, properly drained, and provided with trapped drains, and kept clean.

(2) *Walls and ceilings.*—Walls and ceilings of rooms in which milk is handled or stored shall be frequently painted with a light colored paint or finished in a manner approved by the health officer, and kept clean.

(3) *Doors and windows.*—All openings into the outer air shall be effectively screened to prevent the access of flies. Doors shall be self-closing.

(4) *Lighting and ventilation.*—All rooms shall be well lighted and ventilated.

(5) *Protection from contamination and flies.*—The various milk-plant operations shall be so located and conducted as to prevent any contamination one to the other. All means necessary for the elimination of flies shall be used.

(6) *Toilet facilities.*—Every milk plant shall be provided with toilet facilities conforming with the ordinances of the city of Chattanooga. There shall be at least one room or vestibule not used for milk purposes between the toilet room and any room in which milk or milk products are handled. The doors of all toilet rooms shall be self-closing. Toilet rooms shall be kept in a clean condition, in good repair, and well ventilated. In case privies or earth closets are permitted and used, they shall be located at least 100 feet from the building, and shall be of a sanitary type constructed and operated in conformity with the ordinances of the city of Chattanooga.

(7) *Water supply.*—The water supply shall be easily accessible, adequate, and of a safe sanitary quality.

(8) *Wash room.*—A wash room shall be provided, equipped with hot running water, soap, and sanitary towels of a type approved by the health officer. The use of a common towel is prohibited.

(9) *Milk piping.*—Only "sanitary milk piping" of a type which can be easily cleaned with a brush shall be used.

(10) *Construction of equipment.*—All equipment with which milk comes in contact shall be constructed in such manner as to be easily cleaned.

(11) *Disposal of wastes.*—All wastes shall be disposed of in conformity with the requirements of the health officer.

(12) *Methods—Cleaning and sterilization of containers and apparatus.*—All milk containers and milk apparatus shall be thoroughly cleaned after each usage by rinsing with clean water, then scrubbing in an alkaline solution, then rinsing with clean water, and finally sterilized in a manner approved by the health officer.

(13) *Storage of containers.*—After sterilization all bottles, cans, and other containers shall be stored in an inverted position in a clean place protected from contamination.

(14) *Handling of containers and apparatus.*—Between sterilization and usage all containers and apparatus shall be handled in such manner as to prevent any part of the person or clothing from coming in contact with any surface with which milk or milk products come in contact.

(15) *Storage of caps.*—Milk bottle caps shall be purchased and stored only in sanitary tubes and shall be kept therein until used.

(16) *Pasteurization.*—Pasteurization shall be performed as described in the definition section of this ordinance. The time and temperature record charts shall be preserved for a period of three months for the information of the health officer.

(17) *Cooling*.—All milk not Pasteurized upon receipt shall be immediately cooled to a temperature of 50° F. or less and maintained thereat until Pasteurized; and all Pasteurized milk shall be immediately cooled to a temperature of 50° F. or less and maintained thereat until delivery.

(18) *Bottling*.—Bottling shall be done in such manner as to prevent any part of the person or clothing from coming in contact with any surface with which milk or milk products come in contact.

(19) *Overflow milk*.—Overflow milk which has become machine contaminated shall not be sold for human consumption.

(20) *Capping*.—Capping shall be done by machinery approved by the health officer. Hand capping is prohibited.

(21) *Time of delivery*.—Milk to be consumed in the form of whole milk shall be delivered to the final consumer within 36 hours of the time of Pasteurization.

(22) *Personnel—Health certificates*.—Every person whose work brings him or her in contact with the production, handling, storage or transportation of milk or milk products shall hold a certificate from the health officer certifying to the fact that within 12 months laboratory and other examinations have been made indicating that said person is free of tuberculosis, that said person is not a carrier of typhoid fever, and that said person is free of any disease capable of being spread through milk supplies.

(23) *Notification of disease*.—Notice shall be sent to the health officer within 24 hours by any milk producer or distributor upon whose dairy farm any case of sickness or any infection, contagious, or communicable disease occurs.

(24) *Cleanliness*.—All persons coming in contact with milk or milk products, containers or equipment shall wear clean outer garments and shall keep their hands clean at all times while thus engaged.

GRADE B PASTEURIZED MILK

Grade B pasteurized milk is grade A, B, C, raw milk which has been Pasteurized, cooled, and bottled in a milk plant conforming with all of the items of sanitation required for grade A Pasteurized milk excepting (2), (4), or (24), and the average bacterial count of which at no time after Pasteurization and prior to delivery exceeds 100,000.

GRADE C PASTEURIZED MILK

Grade C Pasteurized milk is Pasteurized milk which does not meet the requirements of Grade B Pasteurized milk, and the average bacterial count of which at no time prior to delivery exceeds 500,000 per cubic centimeter. Grade C Pasteurized milk shall be sold for cooking and manufacturing purposes only and every container thereof shall be marked with the words, "For cooking and manufacturing purposes only."

SEC. 8. That at the expiration of 12 months from and after the passage of this ordinance no milk shall be sold in the city of Chattanooga except grade A raw milk, Pasteurized milk, and certified milk produced under the supervision of the medical commission of the Academy of Medicine of Chattanooga and the Hamilton County Medical Society.

SEC. 9. That at any time between regular announcements of milk grades any producer or distributor may make application for regrading his product.

In case the applicant's existing low grade is due to excessive bacterial count, said application must be supported by at least two bacteriological examinations made subsequent to the end of the previous grading period and indicating that the quality of the applicant's output has improved since the last grading announcement and conforms with the requirements of a higher grade. The samples upon which the said two analyses are made may be brought to the health department laboratory by the applicant.

Upon receipt of a satisfactory application, the health officer shall make at least four bacteriological analyses upon samples, collected by the health officer of the applicant's output within a period of not less than two weeks and not more than three weeks of the date of the application. The health officer shall award a higher grade immediately in case the said four analyses indicate the necessary quality.

In case the applicant's existing low grade is due to a violation of an item of sanitation other than bacterial count, said application must be accompanied by a statement signed by the applicant to the effect that the violated item of sanitation has been conformed with. Within one week of the receipt of such an

application the health officer shall make a reinspection of the applicant's establishment and, in case the findings justify, shall award a regrade.

At any time between regular announcements of milk grades the health officer may lower the grade of any milk producer or distributor if as a result of inspections or milk analysis a lower grade shall be justified in accordance with the terms of this ordinance.

SEC. 10. That no milk producer or distributor shall transfer milk or milk products from one container to another upon the street or in any vehicle or store or in any place except a bottling or milk room especially used for that purpose, except as may be especially permitted by the health officer in the case of milk being delivered in bulk. The sale of dip milk is hereby expressly prohibited.

It shall be unlawful for hotels, soda fountains, restaurants, and similar establishments to sell or serve any whole milk or adjusted milk except in the original container in which it was received from the producer or distributor.

SEC. 11. That no milk or cream shall be sold in the city of Chattanooga that has been Pasteurized outside the county of Hamilton, Tenn., except as may be authorized by the city health officer.

SEC. 12. That no person shall spit, except into a receptacle provided for the purpose, in any part of any room, vehicle, or other place for the sale, storage, handling, or transportation of milk.

SEC. 13. That all vehicles used for delivery of milk in the city of Chattanooga shall be so constructed as to protect the milk from contamination. Such vehicles shall be kept clean while used in transporting milk or milk products. No substance capable of contaminating milk or milk products shall be transported with milk or milk products.

SEC. 14. That the health officer shall immediately denature with rennet or some harmless coloring matter any milk or milk products found misbranded with respect to grading or sold without a permit.

SEC. 15. That no milk or milk products shall be Pasteurized more than once.

SEC. 16. That all dairies and milk plants from which milk is supplied to the city of Chattanooga, which are hereafter constructed, shall conform in their construction to the requirements of the health officer.

SEC. 17. That milk which does not conform with any one of the grades described in this ordinance shall not be sold in the city of Chattanooga.

SEC. 18. That any person, firm, or corporation who shall violate any of the provisions of this ordinance shall be deemed guilty of a misdemeanor, punishable by a fine of not less than \$2 nor more than \$50 for each and every offense.

SEC. 19. That should any section, paragraph, sentence, clause, or phrase of this ordinance be declared unconstitutional or invalid for any reason the remainder of said ordinance shall not be affected thereby.

SEC. 20. That all ordinances and parts of ordinances conflicting with this ordinance be, and the same are hereby repealed.

SEC. 21. That this ordinance take effect two weeks from and after its passage, the public welfare requiring it.

CHICAGO, ILL.

Milk—Requirements Governing Cows—Purity and Bacteria Content of Inspected Milk. (Ord. December 23, 1925)

SECTION 1. That paragraphs (b) and (i) of section 1949, in Article XIV of Chapter XXXIX of the Chicago Municipal Code of 1922, be and the same is [are] hereby amended to read, respectively, as follows:

(b) All milk, cream, skim milk, or buttermilk which shall be delivered into, sold, offered for sale, or distributed for purposes of food, in the city of Chicago shall be from healthy cows free from disease. For the purpose of determining the condition of such cows, each and every animal in the herds from which milk shall be obtained shall be certified by veterinarians authorized by the commissioner of health, and shall have been examined within one year of the time when milk is accepted therefrom. The commissioner of health may also consider certification from other veterinarians when the herd is under State or Federal supervision and shall have been examined within a like time. The examination to be made of such animals shall be of such a character as to enable the veterinarian to determine whether the animal is free from contagious or infectious diseases of all kinds and to certify thereto. The test may be repeated when it is deemed advisable or necessary by the commissioner of health. In case such examination is under Federal or State authority the

owners of the herds may obtain certificates or blanks from the commissioner of health for purposes of certification by such Federal or State veterinarians. Any cow added to a herd that has been examined and on which a certificate has been issued shall be examined when it is first added to the same. All cattle found to be unhealthy shall be immediately excluded from the herd which is certified as hereinbefore provided, and any milk therefrom shall be withheld from the market. Any diseased animal found in the herd at any time shall be entirely removed from the premises wherein the certified herd is kept within 30 days after the discovery of such disease.

(i) All inspected milk, cream, skim milk, or buttermilk sold, offered for sale, or kept with the intention of selling or brought into the city of Chicago shall not yield more than a perceptible amount of sediment or stain other than that of natural butterfat, when a pint sample of the same is filtered through a pledget of cotton one inch in diameter, and shall be entirely free from disease-producing bacteria, and blood, pus, or other matter or thing dangerous or detrimental to health.

Inspected milk and inspected skim milk shall not contain more than 100,000 bacteria per cubic centimeter from October 1 to May 1, inclusive, and not more than 150,000 bacteria from May 2 to September 30, inclusive. Inspected cream shall not contain more than 150,000 bacteria per cubic centimeter from October 1 to May 1, inclusive, and not more than 300,000 bacteria from May 2 to September 30, inclusive.

The method of determination of the number of bacteria in milk and milk products shall be such as shall conform with or be equal to methods recommended by the American Public Health Association.

SEC. 2. This ordinance shall take effect and be in force from and after April 1, 1926.

McKEESPORT, PA.

Milk—Production, Handling, and Sale. (Ord. October 31, 1924)

SECTION I. For the purpose and within the meaning of this ordinance the following definitions shall obtain:

1. "Milk" means milk, skimmed milk, cream, sour milk, sour cream, buttermilk, and all other fluid derivatives of milk except condensed milk and evaporated milk.

2. "Skimmed milk" means milk from which substantially all the butter fat has been removed.

3. "Person" includes masculine and feminine and any firm or corporation, and any agent, servant, assistant, employees, or representative thereof.

4. "To sell" or "shall sell" means the selling, exchanging, delivering, or having in possession, care, control, or custody with intent to sell, exchange, or deliver or to offer or expose for sale.

5. "Bacterial colonies per cubic centimeter" shall be those obtained according to the standard methods for the bacteriological examination of milk as recommended by the American Public Health Association.

SEC. II. No person shall sell—

1. Milk containing colostrum.

2. Homogenized milk, emulsified milk, or remade milk, unless it is plainly and conspicuously labeled, "Homogenized," "Emulsified," or "Remade" as the case may be.

3. Skimmed milk which has not been Pasteurized unless made from "certified milk," "grade A raw milk" or made from "Pasteurized milk," or sell skimmed milk which is not labeled "Skimmed milk."

4. Milk obtained from a milk-receiving station or a milk-treatment plant where all parts of the apparatus with which the milk comes in contact are not cleansed daily in a manner satisfactory to the bureau of health issuing the permit to sell milk.

5. Milk in unsterilized containers, which means containers which have not been subjected to moist heat, or moist heat and chemical treatment as may be necessary to effect to a practical degree the destruction of bacteria and other microorganism therein. No chemicals other than the washing compounds in common use shall be used except by written permission of the bureau of health issuing the permit to sell milk.

6. Milk transferred from one container to another at any place other than the stations or depots for which a permit for the sale of milk has been issued by the bureau of health.

7. Milk, the container of which is labeled or branded so as to mislead or deceive the purchaser.

8. Milk from a vessel not protected by a suitable cover or so placed that it may be contaminated by dust, dirt, or flies.

9. Milk stored or kept for sale in any stable or any room which is dirty, or in which rubbish or waste material is allowed to accumulate.

SEC. III. No person shall sell milk in the city of McKeesport without a permit issued by the bureau of health nor otherwise than in accordance with the terms of said permit, and with the regulations of said bureau of health.

The provisions in this section shall not apply to milk when sold in hotels and restaurants when such milk is obtained from a person already in lawful possession of a permit for the sale of milk within the city of McKeesport.

Each person desiring a permit from the bureau of health to sell milk shall make application therefor on a form to be furnished by said bureau of health. Each permit to sell milk shall be valid for one year from the 1st day of April. Each person receiving a permit to sell milk shall pay into the treasury of the city of McKeesport, the sum of \$5 as an inspection fee.

SEC. IV. The bureau of health shall not issue a permit to sell milk delivered raw to the consumer until after an examination has been made by a competent representative of the bureau of health as to the sanitary condition of the place where the milk is to be sold and of the place where the milk is to be handled in any way and of the dairy farm where such milk is produced and the bureau of health is satisfied that the care and treatment of such milk will be in accordance with the terms of this ordinance and the regulations of said bureau of health.

The bureau of health shall not issue a permit to sell milk delivered Pasteurized to the consumer until after an examination has been made by a competent representative of the bureau of health as to the sanitary condition of the place where the milk is to be sold and of the place where the milk is to be received or handled in any way after delivery from the dairy farm and the bureau of health is satisfied that the care and treatment of such milk will be in accordance with the terms of this ordinance and the regulations of said bureau of health.

SEC. V. All milk sold in the city of McKeesport shall be sold under the following grades or designations and not otherwise: Certified milk; grade A raw milk; Pasteurized milk.

SEC. VI. "Certified milk" means the product of dairies operated in accordance with the "methods and standards for the production and distribution of certified milk" last adopted by the American Association of Medical Milk Commissions, and the production and handling of which shall be certified to by a milk commission instituted in compliance therewith.

SEC. VII. "Grade A raw milk" means milk produced and handled in accordance with the following special regulations:

1. "Grade A raw milk" shall be milk from a herd, each member of which shall be free from communicable disease as determined by complete physical examinations and tuberculin tests conducted in accordance with the rules, regulations, and practice of the Pennsylvania Bureau of Animal Industry. Each examination and test may only be made by a veterinarian whose competency and reliability has been certified by said bureau.

A complete report of each examination and test, approved by said bureau, must be filed with the bureau of health before the milk from any cow may be sold as "grade A raw milk."

2. "Grade A raw milk" as delivered to the consumer or prior to such delivery shall not develop more than 100,000 bacterial colonies per cubic centimeter when inoculated into standard agar nor shall milk of this designation show more than 500,000 individual bacteria per cubic centimeter when counted by direct observation under a microscope.

3. "Grade A raw milk" shall be delivered in bottles unless otherwise specified in the permit to sell milk.

4. The caps of all bottles containing "grade A raw milk" shall be uncolored and with the designation "grade A raw milk" and the name of the dealer clearly and legibly printed on the outer side of the cap.

5. The bureau of health shall cause all persons employed in or about dairy barns or milk houses who in any manner may come in contact with "grade A raw milk" on the farm on which such milk is produced or in any place where "grade A raw milk" is exposed or placed in containers to be examined for communicable diseases at least semiannually and at any subsequent time as the bureau of health may direct. Those found free from communicable disease shall be furnished a health certificate in accordance with the regulations of the bureau

of health. The medical examination and the issuance of health certificates shall be at the expense of the bureau of health.

6. The sanitary conveniences on the dairy farm, such as privy vaults, cesspools, etc., shall be fly tight and kept in a sanitary condition.

7. The water supply used in the dairy and for washing utensils shall be sufficiently abundant for all purposes, easy of access, and free from contamination.

SEC. VIII. "Pasteurized milk" means milk produced and handled in accordance with the following special regulations:

1. Milk for Pasteurization and sale as "Pasteurized milk" shall be clean milk handled under modern sanitary conditions.

2. "Pasteurized milk" is milk that has been subjected to a temperature of not less than 145° F. or more than 148° F. for a period of not less than 30 minutes.

3. "Pasteurized milk" shall not develop more than 50,000 bacterial colonies per cubic centimeter when inoculated into standard agar from a sample of Pasteurized milk as delivered to the consumer or at any time after Pasteurization and prior to such delivery.

4. A true record of Pasteurization as given by a recording thermometer approved by the bureau of health, shall be on file and ready for inspection at the place where the milk is Pasteurized. The record on file shall be correctly dated and shall cover the six months previous to the date of inspection.

5. "Pasteurized milk" shall be delivered to the consumer within 24 hours after Pasteurization.

6. "Pasteurized milk" shall be delivered to the consumer in bottles only unless otherwise specified in the permit to sell milk.

7. The caps of all bottles containing "Pasteurized milk" shall be uncolored and with the designation "Pasteurized milk" and the name of the dealer clearly and legibly printed on the outer side of the cap.

8. The bureau of health shall cause all persons who in any manner come in contact with milk during or after Pasteurization to be examined for communicable disease at least semiannually and at any subsequent time as the bureau of health may direct. Persons found free from communicable disease shall be furnished a health certificate in accordance with the regulations of the bureau of health. The medical examinations and the issuance of the health certificates shall be at the expense of the bureau of health.

SEC. IX. 1. No person shall sell milk which contains any added water, or milk which has had the butterfat or any portion thereof removed therefrom, or milk to which has been added any substance for the purpose of increasing its consistency or thickness, or milk which contains less than $3\frac{1}{4}$ per cent of butterfat and less than 12 per cent of milk solids.

If a person accused of selling milk containing less than $3\frac{1}{4}$ per cent of butterfat and less than 12 per cent of milk solids, shall furnish satisfactory affidavit that nothing has been added to or taken from the milk in question, which is otherwise pure and wholesome, and is not below 3 per cent of butterfat, no prosecution shall be instituted against such person.

2. No person shall sell cream which contains or is mixed with any added condensed or evaporated milk or cream, or cream to which has been added any substance for the purpose of increasing its consistency or thickness, or cream which contains less than 18 per cent of butterfat: *Provided*, That cream, when it contains or is mixed with any added condensed or evaporated milk or cream, may be sold, if the vessel or container in which such cream is sold is plainly labeled, stating the fact that such cream contains or is mixed with added condensed or evaporated milk or cream, and the amount thereof.

3. No person shall sell or have in possession with intent to sell, for human consumption, milk or cream to which has been added boracic acid salt, boracic acid, salicylic acid, salicylate of soda, formaline, formaldehyde, sodium fluoride, sodium benzoate, or any other compound or substance for the purpose of preserving or coloring the same.

SEC. X. Any person having the possession or custody of bottles, cans, or other containers in which milk is sold shall cause any such bottles, cans, or containers to be cleaned immediately upon emptying the same; and no person shall use a milk vessel as a container for any other substance than milk.

SEC. XI. Any member, officer, or agent of the bureau of health is hereby authorized to enter and to have full access to any building, structure, or farm where milk is stored or kept for sale or in which he has reason to believe milk is stored or kept for sale, and to all wagons, railroad cars, or any other vehicles used for the conveyance or delivery of such milk. Such member, officer, or agent is authorized to take samples of milk from any such building, structure, farm, or vehicle (any

one sample not to exceed 1 quart) for the purpose of inspecting, testing, or analyzing such milk upon payment therefor at the usual market rates when payment is demanded. Every such sample shall have a label attached to the vessel containing the sample and shall have written thereon at the time of taking the sample or immediately thereafter, the name of the dealer, the number of the sample, the date of collection, and the name of the member, officer, or agent of the bureau of health taking the sample. Such member, officer, or agent of the bureau of health shall offer to the person from whose possession the sample is taken the information written on the label.

SEC. XII. The bureau of health of the city of McKeesport is hereby charged with the enforcement of the provisions of this ordinance. The bureau of health is further authorized to make such regulations from time to time as are necessary for the efficient execution of the provisions of this ordinance. The bureau of health, after affording the permittee an opportunity for a hearing, may suspend or revoke any permit issued by it under this ordinance whenever it shall determine that the permittee has violated any of the provisions of this ordinance or of the regulations made hereunder. Any permit issued by the bureau of health may be suspended temporarily by the bureau of health whenever it deems necessary.

SEC. XIII. Any person violating any of the provisions of this ordinance shall, on conviction by any magistrate, alderman, or justice of the peace, be sentenced for a first offense to pay a fine of not less than \$5 or more than \$25 and for each subsequent offense a fine of not more than \$100. In default of payment of any fine the defendant shall be sentenced to jail for a period of one day for each dollar of fine imposed.

Any person being convicted for a violation of any of the provisions of this ordinance and who fails to comply with the terms hereof after having received from the meat and milk inspector notice, in writing, of the time within which the terms and conditions of said ordinance under which he was convicted shall be complied with, shall be deemed guilty of a new offense and upon conviction thereof shall be subject to and liable for the fines herein imposed. All penalties received under the provisions of this ordinance shall be for the use of the city.

MILWAUKEE, WIS.

Milk—Sale for Consumption on Premises where Sold. (Ord. November 23, 1925)

SECTION 1. There is added to the Milwaukee Code of 1914 one new section to read:

SEC. 789.1. It shall be unlawful for any person, within the limits of the city of Milwaukee, to sell milk in any way whatsoever for consumption on the premises where sold, excepting in original containers well capped or sealed, served intact in such container or opened in the presence of the person served, and containing only the quantity of milk intended for use of the person served, and all milk so sold shall, in every instance, be bottled either at a dairy or milk plant.

NEW YORK, N. Y.

Cows Brought into City—Physical Examination and Tuberculin Testing. (Res. Bd. of H., December 11, 1924)

Resolved, That section 13 of the Sanitary Code be and the same is hereby amended and made to read as follows:

SEC. 13. *Tuberculin test of cows; certificate.*—No milch cow or cow intended for any purpose other than slaughter shall be admitted to the city of New York unless accompanied by a certificate stating that the said cow is free from tuberculosis so far as may be ascertained by physical examination and the application of the tuberculin test. Said certificate shall contain a physical description of the cow sufficiently accurate for the purpose of identification, and must be signed by a legally licensed veterinarian, who shall state the date and place of his registration. The certificate shall also bear a number which must correspond with a tag that shall have been securely attached to and be on the ear of the cow. The certificate shall also contain the date of the examination, which examination shall have been made not more than 60 days prior to the time that

the cow indicated therein is brought into the city; it must also contain the place of examination, the temperature of the cow for six hours prior to the injection of tuberculin, the name, quality, and character of preparation of tuberculin used, the location of the injection, the quantity injected, and the temperatures from the sixth to the eighteenth hour after the injection, or until the reaction is completed.

Milk and Cream—Grades. (Reg. Bd. of H., September 28, 1926)

[Sanitary Code.] SEC. 156. *Milk and cream—Grades and designations.*—All milk or cream held, kept, offered for sale, sold, or delivered in the city of New York shall be so held, kept, offered for sale, sold, and delivered in accordance with the regulations of the board of health and under the following grades or designations and not otherwise: "Certified" milk or cream (raw); "Grade A" milk or cream (Pasteurized); "Grade B" milk or cream (Pasteurized).

The provisions of this section shall apply to milk or cream used for the purpose of producing or used in the preparation of sour milk, buttermilk, homogenized milk, milk curds, sour cream, smetany, kumiss, matzoon, zoolak, and other similar products or preparations, provided that any such product or preparation be held, kept, offered for sale, sold, or delivered in the city of New York.

Skimmed Milk—Importation or Sale. (Reg. Bd. of H., May 6, 1926)

[Sanitary Code.] SEC. 173. *Fluid skimmed milk—Distribution regulated—Exceptions.*—No person shall bring into the city of New York or hold, keep, sell, or offer for sale in said city any fluid skimmed milk except where same is contained in hermetically sealed cans of not more than 8 fluid ounces capacity and of a type approved by the board of health. The provisions of this section shall not apply to fluid skimmed milk obtained through a process of separation where such skimmed milk is manufactured in a Pasteurization plant into buttermilk, fermented milk, potcheese, casein, or similar products: *Provided, however,* That such process of manufacture shall not be conducted in any building where milk or cream is offered or held for sale: *And, provided further,* That the provisions of this section shall not apply to condensed skimmed milk or powdered skimmed milk.

Milk and Milk Products—Regulations Governing the Production, Pasteurization, Transportation, Handling, and Sale of. (Reg. Bd. of H., December 27, 1923, December, 11, 1924, and June 25, 1926)

[Regulations governing the production, Pasteurization, transportation, handling, storage, sale, and distribution of milk, skimmed milk, cream, sour cream, buttermilk, condensed or concentrated milk, condensed skimmed milk, and modified milk intended for human consumption in the city of New York.] REG. 9. *Viscolizers, etc., use prohibited except on permit.*—No viscolizer, emulsifier, emulsor, homogenizer, creamer, or similar apparatus or device, shall be installed or used at any place where milk or milk products are handled or stored, except under a special permit issued by the board of health and subject to the conditions of such permit.

REG. 9-A. *Churns, etc.; permit required.*—No person shall install or have or keep a churn or other device or machine for the manufacture or treatment of milk or milk products without a permit from the board of health or otherwise than in accordance with the terms of the said permit and the regulations of the said board.

REG. 83. *Labeling.*—The caps of all bottles containing grade B milk (Pasteurized) and the tags attached to all cans containing grade B milk, skimmed milk or cream (Pasteurized) shall be white, with the grade and designation "Grade B (Pasteurized)," the name and address of the dealer and the date when and place where Pasteurization was performed, clearly, legibly and conspicuously displayed on the outer side thereof. The caps of all bottles containing grade B cream or skimmed milk (Pasteurized) shall be white, with the grade and designation "Grade B cream or skimmed milk (Pasteurized)," and the name and address of the dealer and the date when and place where bottled, clearly, legibly, and conspicuously displayed on the outer side thereof. The caps on all bottles containing grade B cream (Pasteurized) and the tags attached to cans containing grade B cream (Pasteurized) shall bear the words "Light cream," "Medium cream," "Extra heavy cream," or "Special extra heavy cream." No

other word, statement, design, mark, or device shall appear on that part of the outer cap or tag containing the grade and designation unless authorized and permitted by the department of health.

REG. 83a. Cream; butterfat content.—Cream which is held, kept, sold, or offered for sale or exposed for sale or exchanged, must contain butterfat in the following amounts:

Light cream must contain at least 18 per cent of butterfat.

Medium cream must contain at least 23 per cent of butterfat.

Extra heavy cream must contain at least 36 per cent of butterfat.

Special extra heavy cream must contain at least 45 per cent of butterfat.

REG. 106. Manner of testing.—In the case of any herd which is found, when tested in accordance with these regulations, to be free from tuberculosis, the next general test of the herd shall be made within 12 months. Any herd in which one or more reactors shall have been found shall be retested with tuberculin within six months, and every reacting animal shall be excluded from the herd. Tuberculin tests shall be made as follows:

Three preinjection temperatures shall be taken at intervals of two hours, the first preinjection temperature to be taken not less than six hours prior to injection. The first postinjection temperature shall be taken not later than the sixth hour after injection and the temperature shall be taken at intervals of not more than two hours, thereafter continuing up to and including the eighteenth hour. Where the temperature of any animal at the eighteenth hour shows a rise above highest temperature of the preinjection temperatures or any irregular temperature, the temperature readings of such animals must be continued until a definite decision can be reached. Temperature readings of animals that have been suspicious at any previous tests, or that have had repeated injections of tuberculin, must be continued for a period of at least 24 hours after injection.

REG. 129. (f) All operators of Pasteurizing plants for milk or cream located in the city of New York shall adopt regular daily hours between which milk or cream shall be Pasteurized. Every operator shall certify in writing to this department the daily time of starting Pasteurization and the time when Pasteurization is completed.

Where any change is made in the time originally adopted, the operator must immediately notify the department of such change.

REG. 163. No buttermilk or skimmed milk shall be kept, transported, or delivered on any wagon, truck, or other vehicle on which sour cream is being stored, transported, or delivered.

REG. 164. Reducing, standardizing, splitting, modifying, or changing by the addition of skimmed milk, buttermilk, or any substance whatsoever of sour cream is prohibited except at the plant where the cream is Pasteurized.

REG. 165. Cold storage cream.—Cream which has been kept in cold storage must be clearly and legibly labeled "cold storage cream."

Where fresh cream is mixed with cream which has been kept in cold storage, the final product must be labeled "cold storage cream."

Reconstituted Milk and Cream—Repeal of Regulations Relating to. (Res. Bd. of H., July 24, 1923)

Resolved, That section 1 of article 1 of the Sanitary Code be and the same is hereby amended by the repealing and annulling of definitions 43 and 44 relating to reconstituted milk and reconstituted cream.

Resolved, That sections 174, 175, and 176 of the Sanitary Code relating to reconstituted milk and reconstituted cream be and they are hereby repealed and annulled.

Resolved, That the regulations governing the production, Pasteurization, handling, storage, sale, and distribution of reconstituted milk and reconstituted cream, adopted by the board of health November 27, 1918, be and they are hereby repealed and annulled.

Cheese—Manufacture or Preparation. (Res. Bd. of H., January 22, 1924)

Resolved, That article 9 of the Sanitary Code be amended by adding thereto a new section to be numbered 151-a, to read as follows:

SEC. 151-a. Cheese; manufacture or preparation of; permit required.—No person shall conduct, maintain, or operate any establishment or factory in the city of New York, wherein cheese is made, prepared, or put up for use or sale, without a permit therefor issued by the board of health or otherwise than in accordance with the terms of the said permit and with the regulations of the said board.

ROANOKE, VA.

Milk and Milk Products—Production, Handling, and Sale. (Ord. August 20, 1926, as Amended October 1, 1926)

SECTION I. Definitions.—The following definitions shall apply in the interpretation and the enforcement of this ordinance:

(a) *Milk*.—Milk is hereby defined to be the whole, fresh, clean, lacteal secretion obtained by the complete milking of one or more healthy cows.

(b) *Milk fat or butterfat*.—Milk fat or butterfat is the fat of milk and has a Reichert-Meissel number of not less than 24 and a specific gravity of not less than 0.905 (40° C).

(c) *Cream*.—Cream is that portion of milk rich in milk fat, which rises to the surface of milk on standing or is separated from it by centrifugal force, is fresh and clean and contains not less than 18 per cent of milk fat.

(d) *Skimmed milk*.—Skimmed milk is milk from which substantially all the milk fat has been removed.

(e) *Adjusted milk*.—Adjusted milk is milk in which the percentage of milk fat has been adjusted by the addition or removal of cream or skimmed milk.

(f) *Buttermilk*.—Buttermilk is the product which remains when milk fat is removed from milk or cream, sweet or sour, in the process of churning. It contains not less than 8.5 per cent of milk solids not fat.

(g) *Cultured buttermilk*.—Cultured buttermilk is the product resulting from the souring or treatment by a lactic acid culture of milk or milk products.

(h) *Evaporated milk (unsweetened)*.—Evaporated milk (unsweetened) is milk from which a considerable portion of water has been evaporated, and contains not less than 25.5 per cent of milk solids and not less than 7.8 per cent milk fat.

(i) *Condensed milk (sweetened)*.—Condensed milk (sweetened) is milk from which a considerable portion of water has been evaporated, to which sugar has been added, and contains not less than 28 per cent of milk solids and not less than 8 per cent milk fat.

(j) *Condensed skimmed milk*.—Condensed skimmed milk is skimmed milk from which a considerable portion of water has been evaporated, and contains not less than 20 per cent of milk solids.

(k) *Powdered (dried) whole milk*.—Powdered whole milk is milk from which substantially all of the water has been removed, and contains not less than 26 per cent of milk fat, and not more than 5 per cent of moisture.

(l) *Powdered (dried) skimmed milk*.—Powdered skimmed milk is skimmed milk from which substantially all of the water has been removed, and contains not more than 5 per cent of moisture.

(m) *Recombined milk*.—Recombined milk is a substance produced by recombining powdered whole milk, powdered skimmed milk, condensed or evaporated milk, or skimmed milk, and milk fat, with water, and shall conform in milk fat percentage and bacterial counts to the provisions of this ordinance relating to milk.

(n) *Milk products*.—Milk products shall be taken to mean and include cream, adjusted milk, cultured buttermilk, evaporated milk (unsweetened), condensed milk (sweetened), condensed skimmed milk, powdered whole milk, powdered skimmed milk and recombined milk and ice cream.

(o) *Pasteurization*.—The terms "Pasteurization," "Pasteurized," "Pasteurize," and similar terms shall be taken to refer to the process of heating milk or milk products to a temperature of approximately 145° F., never less than 142° F., and holding at such temperature for not less than 30 minutes, in Pasteurization apparatus approved by the health officer, the temperature and time being automatically recorded by a temperature and time recording device approved by the health officer.

(p) *Milk producer*.—A milk producer is any person, firm, or corporation who owns or controls one or more cows, a part or all of the milk from which is for sale, or sold or delivered to another person, firm, or corporation.

(q) *Milk distributor*.—A milk distributor is any person, firm, or corporation which has in possession, offers for sale, sells, or delivers to another, any milk or milk products for consumption or manufacturing purposes.

(r) *Dairy or dairy farm*.—A dairy or dairy farm is any place or premises where one or more cows are kept, a part or all of the milk or milk products from which is sold or delivered to any person, firm, or corporation.

(s) *Milk plant*.—A milk plant is any place, or premises, or establishment where milk or milk products are collected, handled, processed, stored, bottled, Pasteurized, or prepared for distribution.

(t) *Health officer.*—The health officer shall be taken to mean the health officer for the city of Roanoke in person, or his authorized representative.

(u) *Average bacterial count.*—Average bacterial count shall be taken to mean the average bacterial count of all samples taken during the grading period, including at least four samples taken upon separate days.

(v) *Grading period.*—The grading period shall not exceed two months.

(w) *Disinfectant.*—A disinfectant is any germicidal substance approved by the health officer.

(x) *Unsterilized container.*—An unsterilized container is one which has not been subjected to moist heat at a temperature as high as 205° F. for two minutes or longer, or such alternative requirements necessary to effect the sterilization thereof as may be approved by the health officer.

(y) *Ice cream.*—Ice cream is a frozen product made from cream, milk, sugar, and with or without natural flavoring and containing not less than 8 per cent of milk fat. Fruit ice cream is a frozen product made from cream, milk, sugar, and sound, clean, mature fruits and containing not less than 8 per cent of milk fat.

(z) *Person, agent, servant, or employee.*—Person imports both the singular and the plural, as the case demands, and includes corporations, partnerships, companies, societies, and associations. Agent, servant, or employee is any person employed by any other person in the handling, production, sale, or distribution of milk and milk products which are to be disposed of in any manner within the limits of the city of Roanoke.

SEC. II. *Adulteration.*—That milk, cream, or skimmed milk is regarded as adulterated milk, cream, or skimmed milk when found to come under any of the following classifications by the health department for the city of Roanoke, Va., and no person shall sell, offer for sale, or deliver for human consumption as milk, cream, or skimmed milk, or have in his possession, with intent to sell or deliver for human consumption:

(a) Milk or cream to which water or any coloring matter, preservative, or other foreign substance has been added; or

(b) Milk containing less than 3.25 per cent of milk fat or less than 8.5 per cent of solids not fats, or less than 11.75 per cent total solids, or cream containing less than 18 per cent of milk fat; or

(c) Skimmed milk which contains less than 8.5 per cent of solids not fat, or which is not labeled "Skimmed milk"; or

(d) Milk or cream containing, or which has been exposed to, any disease producing bacteria; or

(e) Milk or cream, the container of which is labeled or branded so as to mislead or deceive the purchaser; or

(f) Milk or cream produced from diseased cows or from cows during the period of 15 days preceding parturition, or at least 7 days after parturition, or within such time thereafter as the milk is abnormal, or from cows which have been fed unwholesome food or have had access to contaminated water; or

(g) Milk or cream which has been produced, stored, handled, or transported in any unclean or unsanitary manner; or

(h) Milk or cream the retail or final container of which does not bear a plain and conspicuous statement showing the kind and grade as herein defined; or

(i) Milk or cream in unsterilized containers; or

(j) Milk or cream which, after cooling, has been kept at a temperature higher than 70° F., except "grade C Pasteurized milk"; or

(k) Milk which has had the cream line increased by any artificial means; or

(l) Milk having a specific gravity of less than 1.029.

SEC. III. *Permits.*—(a) *Permits required.*—No person producing or distributing milk or cream or making ice cream for sale shall sell or dispose of milk or milk products, or ice cream, in any manner or have in his custody or possession with intent to sell or dispose of any milk or milk products or ice cream within the city of Roanoke without first obtaining a permit from the health officer.

(b) *Authority to issue and revoke permits.*—The health officer is hereby authorized to issue permits to persons to dispose of milk and milk products and ice cream in the city of Roanoke and suspend and revoke said permits when he deems it necessary so to do. Any person disposing of milk or milk products or ice cream in any way without the required permits shall be guilty of violating this ordinance.

(c) *Application for permit to be made in writing.*—Application for a permit to sell or dispose of milk or milk products in any manner within the limits of the city of Roanoke shall be made on a form prescribed by the health officer, and shall be signed by the applicant. The written application for such permit must contain the name and address of the applicant, if an individual, and the names of the

members or officers in case the applicant is a partnership or corporation, and the name of the firm or corporation must be stated together with its address, a description of the premises where such milk or milk products are to be produced, handled or distributed, bottled, labeled, or sold. The applicant shall also state in the application that he has received a copy of this ordinance and agrees to comply with its provisions. Each dairy or place shall be properly inspected as herein provided, as soon as practicable after the application has been received in the office of the health department, and shall be passed before a permit is issued, but in the discretion of the health officer a certificate from a Federal or State dairy inspector, or from some other competent inspector acceptable to the health officer may be furnished, in lieu of inspection by the dairy and food inspector of this city.

(d) *Revocation of permits and regrading.*—Any producer or distributor, whose milk or milk products herein named exceed the bacterial limit of the grade for which it is sold, shall be immediately notified and given 10 days in which to reattain the standard, at the expiration of which time a series of samples will be collected in the usual way. If the bacterial limit is again exceeded, his permit shall be suspended and a permit for a lower grade of milk will be issued provided his milk attains the standard of "grade B Pasteurized milk," but if he is producing "grade B Pasteurized milk" the sale of his product except as "grade C Pasteurized milk" will be suspended until the health officer can determine that the standard has been reattained: *Provided*, that no milk or milk products shall be degraded or its sale stopped for this reason without first giving the person an opportunity to appear before the health officer and show cause why his permit should not be suspended, revoked, or amended. If good and sufficient reason is shown, the health officer may grant the person a reasonable time, not to exceed 20 days in which to reattain the standard. A permit for any grade of milk or milk products will be revoked and the sale of the product stopped if the bacterial limit is repeatedly or frequently exceeded, or if any other section of this ordinance is repeatedly or frequently violated.

SEC. IV. *Labeling and placarding.*—Containers, covers, caps, and labels must be approved by the health officer. The proprietor's name or the name of the company producing or commercially handling any grade of milk or milk products named herein must appear on the cap of the bottle, together with the name of the product and the grade of milk contained therein or the grade of milk from which the contained product was made, and the letter signifying the grade shall be at least three-eighths of an inch high. In the case of final containers, not sealed by a cap, the same information shall be on the can or on a tag fixed to the can in which case the letter signifying the grade shall not be less than one-half inch high and conspicuously placed. Other words necessary for the proper description of the grade and product shall appear in such type as to be easily read.

Every grocery store, restaurant, café, soda fountain, or similar establishment selling or serving milk shall display in a place approved by the health officer a card furnished by the health officer, stating the grade or grades of the milk sold at this place.

SEC. V. *Final containers to be sealed.*—It shall be unlawful for any person to sell, deliver, or transport milk in the city of Roanoke except in a sealed container and for the purpose of this ordinance milk bottles properly capped and milk cans in good repair with water-tight umbrella type closely fitting tops are deemed to be sealed containers. This section does not include buttermilk.

SEC. VI. *The testing of milk and milk products.*—During each grading period at least four samples of milk or cream from each dairy farm and each milk plant shall be tested by the health officer. Samples of milk and cream from stores, cafés, soda fountains, restaurants, and other places where milk products are sold shall be tested as often as the health officer may require. Said tests shall include the determination of the bacterial count made in conformity with the standard methods recommended by the American Public Health Association, and may include such other chemical and physical determinations as the health officer may deem necessary for the detection of adulteration. Notices of bacterial counts shall be given to the producer or distributor concerned as soon as practicable, or to any interested person on request. Samples may be taken by the health officer at any time prior to the final delivery of the milk or milk products. All stores, cafés, restaurants, soda fountains, and other places shall furnish the health officer, upon request, the name of the milk distributor from whom their milk is obtained.

Any producer, handler, or dealer in milk, cream, or ice cream, whether principal, agent, or employee who, on demand, refuses to deliver a sample not to

exceed 1 pint of milk or cream, intended for consumption in Roanoke, in his possession, to any official designated by the health officer to collect samples, shall be guilty of a violation of this ordinance.

SEC. VII. The grading of milk and cream.—The following grades of milk and cream are hereby specified and all milk and cream sold in the city of Roanoke must conform to one of these grades and be so labeled. The grades of cream shall be identical with the grades of milk, but the permissible bacterial count in 20 per cent cream shall not exceed five times that of the grade of milk from which it is taken. Cream having 20 per cent milk fat shall be known as "single" cream and cream having 40 per cent milk fat shall be known as "double" cream and shall be labeled grade A Pasteurized cream (single) or grade A Pasteurized cream (double), etc., according to the grade of milk from which it is taken.

(a) *Certified milk.*—"Certified milk" is milk produced and handled in conformity with "methods and standards for the production and distribution of certified milk" adopted by the American Association of Medical Milk Commissions, June 25 and 26, 1923, and amendments thereto in effect at the time of production and certified to by a medical milk commission of the Roanoke Academy of Medicine.

(b) *Grade A raw milk.*—"Grade A raw milk" shall come from cows free from disease as determined by the tuberculin test and physical examination by a qualified veterinarian, approved by the health officer. It shall be produced and handled by employees free from disease, as determined by medical examination by a qualified physician. It shall be produced under sanitary conditions such that the bacterial count at the time of delivery to the consumer shall not exceed 50,000 per cubic centimeter.

Dairy farms producing this grade of milk shall score at least 80 points on the official score card of this department, which will be the same as that of the United States Department of Agriculture, and of the 80 points at least 45 points must be for "Methods," and shall conform to all the items of sanitation in paragraph (f) of this section.

(c) *Grade A Pasteurized milk.*—"Grade A Pasteurized milk" is milk whose average bacterial count, as determined under section 6 of this ordinance, does not exceed 150,000 per cubic centimeter, before Pasteurization, and is produced upon dairy farms that score not less than 80 points on the official score card of this department, which will be the same as that of the United States Department of Agriculture, and of the 80 points at least 45 points must be for "Methods." This milk must be Pasteurized, cooled, and bottled in a milk plant conforming with all the items of sanitation set forth in section 9 of this ordinance, and the average bacterial count of this milk at no time after Pasteurization and until delivery shall exceed 25,000 per cubic centimeter. The dairy farm upon which this milk is produced must conform to all the items of sanitation in paragraph (e) of this section.

(d) *Grade B Pasteurized milk.*—"Grade B Pasteurized milk" is the same as "Grade A Pasteurized milk" except that the average bacterial count shall at no time prior to delivery exceed 250,000 per cubic centimeter, and the dairy farm must not score less than 75 points, of which at least 45 points must be for "Methods," and the average bacterial count after Pasteurization shall not exceed 50,000 per cubic centimeter.

(e) *Grade C Pasteurized milk.*—"Grade C Pasteurized milk" is milk drawn from healthy tuberculin tested cows and Pasteurized in accordance with the requirements in paragraph 16 of section 8 of this ordinance and shall be sold for manufacturing purposes only and the final container thereof shall be plainly marked with words "For manufacturing purposes only."

(f) *Items of sanitation for "grade A raw milk," "grade A Pasteurized milk" and "grade B Pasteurized milk."*—The dairy farms upon which "grade A raw milk," "grade A Pasteurized milk," and "grade B Pasteurized milk" is [are] produced must conform to all of the following items of sanitation:

(1) *Cows.*—Cows to be free from tuberculosis and other diseases. A physical examination and tuberculin test of all cows shall be made before any milk therefrom is sold and at least once every 12 months thereafter by a duly licensed veterinarian whose test charts are approved by the State department of agriculture. A certificate signed by the veterinarian and filed with the health officer shall be the only valid evidence of the above test.

Every diseased animal shall be removed from the herd at once and no milk from the diseased cows shall be offered for sale. All reacting animals shall be isolated at once and immediately excluded from the premises. These requirements for the tuberculin test shall apply to all cows except to cows on dairy farms within an "official modified tuberculosis free accredited area" under the

modified accredited area plan of the Bureau of Animal Industry of the United States Department of Agriculture and the Virginia Department of Agriculture. Cattle within such areas shall be tested for tuberculosis in accordance with the rules and regulations of the Bureau of Animal Industry of the United States Department of Agriculture governing the testing of cattle in such areas. Herds showing reactors on any test shall be retested within six months, but not before the lapse of 60 days. Food and water for dairy cows shall be clean and wholesome.

(2) *Dairy barns—Location.*—The dairy barn shall be located in a place that is well drained and sufficiently far removed from the barnyard and cow shed to prevent disagreeable odors entering the dairy barn. The dairy barn shall be free from other contaminating surroundings, and as free from dust as practicable.

(3) *Floors.*—Floors and gutters of all dairy barns shall be constructed of concrete or other impervious and easily cleaned material approved by the health officer, and shall be graded so as to drain properly and shall be kept clean and in good repair.

(4) *Walls and ceiling.*—Walls and ceiling of all dairy barns shall be whitewashed or painted as often as necessary or finished in a manner approved by the health officer, and shall be kept clean, and in good repair. In case hay or other food-stuffs are stored above the dairy barn the ceiling shall be tight.

(5) *Stall, tie, and manger.*—All barns in which cows are housed permanently shall be equipped with swinging stanchions. In barns used for milking only stanchions may be of any type approved by the health officer.

(6) *Lighting.*—All dairy barns shall have at least 4 square feet of window space for each cow and this space shall be evenly distributed.

(7) *Ventilation.*—All dairy barns shall have at least 500 cubic feet of air space per cow. During the winter months ventilation and temperature shall be controlled by means of windows hinged at the bottom and so arranged that the cows will be protected from a draft or by some other system of ventilation approved by the health officer.

(8) *Bedding.*—In barns in which cows are housed permanently suitable bedding shall be provided which shall be kept clean.

(9) *Barn yards.*—All barn yards shall be graded and drained as well as practicable and kept clean.

(10) *Disposal of manure.*—All manure shall be removed from the stable at least twice each day to a point to which cows do not have access and disposed of in such manner as best to prevent the breeding of flies therein.

(11) *Milk house or milk room—Location.*—There shall be provided a separate milk room or milk house for the handling and storage of milk, conveniently located in a place free from contaminating surroundings and entirely separate from the barn, residence or any other building and shall be kept clean at all times.

(12) *Construction.*—The milk room or milk house shall be provided with a tight floor constructed of cement or other impervious material and graded to provide proper drainage. The walls and ceiling in the milk house or milk room shall be of such construction as to permit easy cleaning and shall be painted as often as necessary or finished in a manner approved by the health officer. The milk room or milk house shall be properly ventilated and lighted and shall have at least 1 square foot of window glass for every 10 square feet of floor space, and the window space shall be well distributed. The doors, windows, and other openings shall be effectively screened to prevent the entrance of flies. The doors shall be self-closing. The milk room shall be used for no other purposes than the handling and storage of milk or milk products and other operations incident thereto. Articles not necessary in the handling and storage of milk or milk products shall not be kept in the milk house. Facilities must be provided for steam or boiling water in the milk house.

(13) *Cleanliness and flies.*—The floors, walls, ceiling, and equipment of the milk house or milk room shall be kept clean at all times. All means necessary for the elimination of flies shall be used.

(14) *Toilet—Toilets to be sanitary.*—Every dairy farm shall be provided with a sanitary toilet or septic tank located, constructed, and operated in accordance with the regulations of the health department of the city of Roanoke.

(15) *Water supply—Water to be pure.*—The water supply shall be easily accessible, adequate, and of a safe, sanitary quality.

(16) *Utensils—Construction.*—All containers or utensils used in the handling or storage of milk or milk products must be of such construction as to be easily cleaned and must be in good repair. Joints and seams shall be soldered flush. All milk pails shall be of a narrow mouth design approved by the health officer.

(17) *Cleaning*.—All containers and other utensils used in the handling, storing, or transportation of milk or milk products must be thoroughly cleaned by washing with clean water after each usage, scrubbing in a hot alkaline solution and then rinsing with clean water.

(18) *Sterilization*.—All containers and other utensils used in the handling, storage, or transportation of milk or milk products shall between each usage be sterilized with steam, boiling water, or a disinfectant approved by the health officer.

(19) *Storage*.—All containers and other utensils used in the handling, storage, or transportation of milk or milk products shall be stored and aired in the milk house or some other suitable place so that they will not become contaminated by flies, animals, dust or other means before they are used.

(20) *Handling*.—After sterilization no container or utensil used in handling, storing, or the transportation of milk or milk products shall be handled in such a manner as to permit any part of the person or clothing to come in contact with any surface with which milk or milk products come in contact.

(21) *Milking—Udders and teats*.—The udders and teats of all milking cows shall be thoroughly cleaned by wiping with a clean damp cloth, or by washing, if very dirty, and then sponged with a disinfectant approved by the health officer immediately before milking and all excess moisture removed.

(22) *Flanks*.—The flanks of all milking cows shall be free from visible dirt at the time of milking. Long hairs on flanks and udders must be clipped when necessary.

(23) *Milker's hands*.—Before milking the milker's hands shall be thoroughly washed and then rinsed with a disinfectant approved by the health officer, and dried with a clean towel. Should the milker's hands become contaminated during the milking operation they must be redisinfectant. Wet hand milking is prohibited.

(24) *Clean clothing*.—Milkers and those handling the milk shall wear clean milking suits, aprons, or overalls while milking and handling the milk before it is sealed. These garments shall be kept in the milk house or some other place free from contamination, and shall be used for no other purpose.

(25) *Milk stools*.—Milk stools shall be of metal or some other easily cleaned material and of a type approved by the health officer, and shall be kept clean.

(26) *Removal of milk*.—Each pail of milk shall be removed immediately after milking to the milk house. No milk shall be poured or strained in the dairy barn.

(27) *Cooling*.—Milk shall be cooled immediately after milking by running it over a cooler, of a design approved by the health officer, to at least 70° F. and maintained at a temperature as much below 70° F. as practicable until delivered.

(28) *Employees to be free from communicable disease*.—No person who has or is a carrier of or is convalescent from any communicable diseases or lives in the house or on the premises where a communicable disease exists shall be permitted to enter the dairy barn or milk house or to produce, handle, store, or transport milk or milk products. When any communicable disease occurs in the house or family of anyone engaged in the production or handling of milk or milk products he shall at once discontinue his work until such time as adequate arrangements, satisfactory to the health officer, can be made to prevent the spread of the disease. If satisfactory arrangements can not be made the health officer may order that the sale of milk or milk products either be temporarily discontinued or continued under such regulations and restrictions as he may direct. The health officer shall have authority to examine or require the examination by a competent physician of employees to determine whether or not they are affected with or are carriers of such diseases whenever he may deem such an examination necessary.

(29) *Notification of disease*.—Notice shall be sent to the health officer within 24 hours by the milk producer or distributor when a case of any infectious, contagious, or communicable disease occurs, or is suspected, in the home of or in any member of the family of the producer or distributor or the home or family of any employee engaged in the production or handling of milk or milk products.

Sec. VIII. Milk plants.—Milk plants in which milk is Pasteurized, cooled, and bottled for consumption in the city of Roanoke shall conform with all the following items of sanitation:

(1) *Building and equipment—Floors*.—The floors of all rooms in which milk is handled shall be smooth, impervious, properly drained, and provided with trapped drains and kept clean.

(2) *Walls and ceiling*.—Walls and ceiling of rooms in which milk is handled or stored shall be painted frequently with a light-colored paint or finished in a manner approved by the health officer.

(3) *Doors and windows.*—All openings into the outer air shall be effectively screened to prevent the entrance of flies. The doors shall be self-closing.

(4) *Lighting and ventilation.*—All rooms shall be well lighted and ventilated.

(5) *Protection from contamination and flies.*—The various milk plant operations shall be so located and conducted as to prevent any contamination one to the other. All means necessary for the elimination of flies must be used.

(6) *Toilet facilities.*—Every milk plant shall be provided with ample toilet facilities conforming with the ordinance of the city of Roanoke. There shall be at least one room or vestibule not used for milk purposes between the toilet room and any room in which milk or milk products are handled. There shall be no direct opening of any kind between the toilet room and any room in which milk is handled or stored. Nothing shall be stored in the toilet room or vestibule. The doors of all toilet rooms and vestibules shall be self-closing. Toilet rooms shall be kept in a clean condition, in good repair, and well ventilated.

(7) *Wash room and dressing room.*—A wash room shall be provided, equipped with hot running water, soap, and sanitary towels of a type approved by the health officer. Ample dressing rooms with suitable lockers shall be provided and nothing except the clothing of employees shall be kept in these rooms. No other part of the building shall be used as a dressing room nor as a place to keep clothing.

(8) *Water supply.*—The water supply shall be easily accessible, adequate, and of a safe, sanitary quality.

(9) *Milk piping.*—Only "sanitary milk piping" of a type which can be easily cleaned with a brush shall be used.

(10) *Construction of equipment.*—All equipment with which milk comes in contact shall be constructed in such a manner as to be easily cleaned.

(11) *Disposal of waste.*—All waste shall be disposed of in conformity with the requirements of the health officer.

(12) *Methods—Cleaning and sterilization of containers and apparatus.*—All milk containers and milk apparatus shall be thoroughly cleaned after each usage by washing with clean water, scrubbing in a hot alkaline solution, then rinsing with clean water and finally sterilized in a manner approved by the health officer. The various grades of milk shall be kept entirely separate, and separate equipment shall be used for the handling of each grade of milk or all equipment (pipes, vats, Pasteurizer, etc.) shall be thoroughly cleaned and sterilized after one grade of milk has been passed through it before this equipment is again used for another grade of milk.

(13) *Storage of containers.*—After sterilization all bottles, cans, and other containers shall be stored in an inverted position in a clean place protected from flies and all other contamination.

(14) *Handling of containers and apparatus.*—Between sterilization and usage all containers and apparatus shall be handled in such a manner as to prevent any part of the person or clothing from coming in contact with any surface with which milk or milk products come in contact.

(15) *Storage of caps.*—Milk bottle caps shall be purchased and stored only in sanitary tubes and shall be kept therein until used.

(16) *Pasteurization.*—Pasteurization shall be so performed as to conform to the definitions of the process as described in paragraph (c) of Section I of this ordinance. A time and temperature record chart shall be made for each lot of milk Pasteurized and kept for a period of three months for the information of the health officer. All Pasteurized milk shall be immediately cooled to the temperature of 50° F. or less and maintained at this temperature until delivered. No milk or milk products shall be Pasteurized more than once.

(17) *Bottling.*—Bottling shall be done in such manner as to prevent any part of the person or clothing from coming in contact with any surface with which milk or milk products come in contact.

(18) *Capping.*—Capping shall be done by machinery approved by the health officer. Hand capping is prohibited.

(19) *Time of delivery.*—Milk to be consumed in the form of whole milk shall be delivered to the final consumer within 24 hours of the time of Pasteurization, and within 48 hours of the time of production.

(20) *Personnel.*—Employees to be clean and free from communicable diseases.—No person who has any infectious or venereal disease shall be permitted to prepare or handle milk or milk products or ice cream, or other frozen products, or any utensils used in the manufacture or handling of same. The health officer shall have the authority to examine or require the examination by a competent physician of employees to determine whether or not they are affected with or are carriers of such diseases whenever he may deem such an examination necessary.

Employees shall not smoke or chew tobacco while at work nor expectorate except in cuspidors and shall be clean in person and shall wash their hands and arms thoroughly after leaving the toilet and before returning to work and shall wear clean clothes while at work.

(21) *Notification of disease.*—Communicable diseases in the home or family of an employee in a milk plant shall be reported in accordance with the requirements of paragraph 29 of Section VII of this ordinance.

SEC. IX. *Milk bottles and containers.*—(1) *Not to be collected from quarantined premises.*—No dairyman or dealer in milk shall collect bottles or other containers from any house or place where there is a case of smallpox, diphtheria, typhoid fever, scarlet fever, or meningitis. Bottles and other containers in the house at the beginning of quarantine and delivered during quarantine shall not be removed until the termination of the quarantine nor until they have been disinfected or sterilized according to the instructions of the health officer. The presence of a warning sign or card shall be considered sufficient notice to the dairyman or dealer or his employee of the presence of these diseases.

(2) *To be used for no other purpose.*—No person shall use or cause to be used for any other purpose than the holding of milk or cream, any milk bottle, can, or other receptacle used by the dealer for the transportation or delivery of milk or cream.

(3) *To be cleaned by users.*—It shall be the duty of all persons having in their possession bottles, cans, or other receptacles used for the transportation or delivery of milk or cream to cleanse such milk vessels immediately after emptying them.

SEC. X. *Transferring or dipping milk.*—No milk producer or distributor shall transfer milk from one container to another upon the street or in any vehicle or store or in any place except a bottling or milk room especially used for that purpose. The sale of "dipped milk" is hereby expressly prohibited.

It shall be unlawful for hotels, soda fountains, restaurants, and similar establishments to sell or serve any whole milk or adjusted milk except from the original container in which it was received from the producer or distributor: *Provided, however,* Such establishments may transfer milk from the original container to containers from which it may be pumped. The pumps, however, shall be approved by the health officer, and such pumps shall be thoroughly cleaned and sterilized at not less than 12-hour periods.

SEC. XI. *Vehicles.*—(1) *Construction.*—All vehicles used for delivery of milk in the city of Roanoke shall be so constructed as to protect the milk from the sun and from contamination. Such vehicles shall be kept clean while used in transporting milk or milk products. No substance capable of contaminating milk or milk products shall be transported with milk or milk products.

(2) *Name on vehicle.*—The owner's name or that of the company or dairy must be plainly painted on both sides of any wagon, truck, or conveyance used for the delivery of milk or milk products in Roanoke, and the letters must be at least 3 inches in height and of a color contrasting with that of the conveyance.

(3) *Detachable signs.*—Nothing in this section shall prevent the use of detachable signs on automobiles or other conveyances provided that said signs are always displayed when said vehicles are used for the transportation of milk.

SEC. XII. *Denaturing adulterated and misbranded products.*—The health officer or his agent shall immediately denature with rennet or some harmless coloring matter any milk or milk products found within the city of Roanoke to be adulterated or misbranded with respect to grade, or sold without permit.

SEC. XIII. *Ice cream.*—(1) *Materials.*—All materials from which all ice cream and similar products are made shall be sound, clean, and wholesome. No over-ripe or unsound fruits, rancid nuts, fermenting sirups or juices shall be used. No milk or cream inferior to that which conforms to the requirements of this ordinance shall be used in the manufacture of ice cream and similar products. Only such coloring matter shall be used in the manufacture of ice cream and similar products as is permitted under the State and National pure food laws. Materials used for making ice cream and similar products shall be frozen within one hour from the time they are mixed unless kept at a temperature below 50° F. or unless the mixture has been Pasteurized. The use of more than 4 ounces of gelatine to 10 gallons of ice cream is prohibited. No ice cream shall contain less than 8 per cent of milk fat.

(2) *Methods.*—Ice cream must be made in an establishment conforming to all the items of sanitation required for milk plants in Section VIII of this ordinance.

(3) *Ice cream manufactured under other inspection.*—Ice cream manufactured under the authorized supervision and inspection of the health department of

any other city may be sold in Roanoke provided its composition and the methods of manufacture and handling conform to the requirements of the State law and to the requirements of this ordinance.

(4) *Ice cream not to be refrozen.*—No old, soft, melted, salty, or broken packages of ice cream or similar products returned to the manufacturer for any cause whatsoever shall under any circumstances be melted, refrozen, or again used in the manufacture of any such product.

SEC. XIV. *Duties and authority of the dairy and food inspector.*—(1) *Duties.*—The dairy and food inspector shall make regular inspections of all dairies and places supplying the city with milk and milk products of a grade above "grade C Pasteurized milk" as often as practicable. He shall note especially the sanitary conditions of each dairy and place and examine all utensils used for the reception, handling, transportation, and dispensing of milk and milk products. The inspector shall as often as practicable go through the stables, examine the cows, watch the milking, and score the dairy. He shall leave a copy of each score with the owner or operator of the dairy and the original shall be kept on file in the health department. He shall also inspect all bottling and distributing plants, Pasteurizing and ice cream plants, and he shall have analyzed at least twice a month a specimen of milk from each place where milk above "grade C Pasteurized milk" is produced or distributed and a record of each analysis shall be kept in the health department. In the case of dairies located at a considerable distance from Roanoke, such inspection of milk and of dairies producing the same may be performed by State or other inspectors acceptable to the health officer and reports of such inspection shall be made by them on forms prescribed by the health officer.

The dairy and food inspector shall make written daily, monthly, and annual reports and such other reports as may be required from time to time by the health officer, and he shall perform such other duties as may be imposed upon him by State law, city ordinance, or the health officer.

(2) *Authority.*—The dairy and food inspector is hereby empowered with police authority and shall assume all the authority of any other police officer in the performance of his duties as dairy and food inspector. He shall have authority within the police jurisdiction of the city of Roanoke to open any vessel or package containing milk or milk products if he has good reason to believe the provisions of this ordinance or the rules and regulations of the health department are being violated, whether such can, vessel, or package is sealed or otherwise locked or whether in transit or otherwise, and if upon inspection he shall find therein any milk or milk products, which he has reason to believe is adulterated, misbranded, and intended for sale in violation of any of the provisions of this ordinance, he shall proceed to denature the same in accordance with Section XII of this ordinance and dispose of the milk or milk products as the circumstances may demand.

The dairy and food inspector is given the authority and is hereby directed to to inspect all dairies and places that produce for sale, handle, or sell milk or milk products or ice cream to any person or persons within the limits of the city of Roanoke and he is given the authority to enforce the provisions of this ordinance.

SEC. XV. *Authority of the health officer to make rules and regulations.*—The health officer for the city of Roanoke is authorized to make such rules and regulations, from time to time, as may be necessary for the efficient execution of the provisions of this ordinance.

SEC. XVI. *Irresponsible persons and children under twelve years not allowed to work.*—No irresponsible person and no child under the age of 12 years shall be permitted or allowed to milk cows or handle milk before it is sealed in the final container in any dairy or place where milk or milk products are produced or handled, nor shall they be employed in any ice cream manufacturing plant.

SEC. XVII. *Repeal and date of effect.*—All ordinances and parts of ordinances in conflict with this ordinance are hereby repealed. (City ordinance No. 1430 entitled "An ordinance to require the tuberculin testing of cattle supplying milk to the city of Roanoke" adopted February 29, 1924, is not repealed by this ordinance except as to the annual retesting of cattle in "modified accredited areas.")

SEC. XVIII. *Unconstitutionality clause.*—Should any section, paragraph, sentence, clause, or phrase of this ordinance be declared unconstitutional or invalid for any reason the remainder of said ordinance shall not be affected thereby. Each and every violation of the provisions of this ordinance shall constitute a separate offense.

SEC. XIX. *Penalty.*—Any person, firm, association, or corporation who shall violate any provision of this ordinance shall be fined not more than \$100, at the discretion of the trial judge or magistrate.

MISCELLANEOUS

AUSTIN, MINN.

Industrial Sewage—Use of Municipal Sanitary Sewerage System for Disposal of. (Ord. 256, October 5, 1923)

1. No stockyard, slaughterhouse, packinghouse, market, brewery, distillery, soap factory, glue factory, bone-boiling establishment or other industrial establishment (hereinafter referred to as "establishment") shall drain its industrial sewage from such establishment into the sanitary sewers of the city of Austin, or into any sewage disposal plants in connection therewith, without first complying with the provisions of this ordinance: *Provided, however,* That domestic sewage of such establishment may be drained into said sanitary sewers.

2. Any such establishment may, however, be given the right to drain its industrial sewage into such sewer system and sewage disposal plants under such reasonable regulations as may be prescribed therefor and the payment of such consideration as is hereinafter prescribed in this ordinance.

Such consideration shall be based in general upon the average amount of industrial sewage produced by such industry during each 24 hours as follows:

Industries producing from 10,000 gallons to 50,000 gallons, \$1,700.

Industries producing from 50,000 gallons to 100,000 gallons, \$8,500.

Industries producing from 100,000 gallons to 200,000 gallons, \$17,000.

Industries producing from 200,000 gallons to 300,000 gallons, \$34,000.

Industries producing from 300,000 gallons to 400,000 gallons, \$51,000.

Industries producing from 400,000 gallons to 500,000 gallons, \$68,000.

Industries producing in excess of 500,000 gallons, \$84,000.

3. Should the average industrial sewage produced by an establishment increase from one of the above classifications to another, said establishment shall then pay as additional consideration the difference between the consideration for the classification that it bears after such increase and the classification that it formerly bore: *Provided, however,* That no consideration or payment in any form except general taxes shall be exacted or demanded by said city of Austin in excess of the amount of \$84,000 from any industry for discharging any amount of industrial sewage into said sewer system and sewage disposal plants. Upon payment of such consideration such industry shall be forever discharged from making any further payment or payments whatsoever to said city (except general taxes) for draining its industrial sewage into such sewer system and disposal plants, either now constructed or which may be constructed or established in the future and shall have the right to forever drain its industrial sewage into the sewer system of the city of Austin and into all sewage disposal plants in connection therewith.

4. The city of Austin is hereby authorized to cause contracts to be entered into with such establishment through its mayor and city recorder in conformity with the provisions of this ordinance. Such contract or contracts may contain such other details not in violation of the terms of this ordinance as the common council by resolution may prescribe.

5. Any person, firm, or corporation violating any of the provisions of this act shall upon conviction thereof be guilty of a misdemeanor and shall be punished by a fine of not more than \$100 for such violation and each 24 hours or fraction thereof that industrial sewerage is drained into said sanitary sewer system, shall constitute a distinct and separate offense.

BALTIMORE, MD.

Gas Tubing, Appliances, and Devices—Registration, Inspection, Sale, and Installation—Licensing of Dealers—Examination and Registration of Gas Fitters—Promulgation of Regulations Directed—Creation of Gas Reference Committee. (Ord. 436, July 7, 1925)

Registration of appliances.—SECTION 1. That no tubing, appliance, appurtenance or device for use with, by, or for the combustion of manufactured (illuminating) gas, shall be sold, or offered for sale, connected or installed in the city of Baltimore unless the type, sample, or model thereof shall be registered with the commissioner of health of Baltimore city, the registration thereof to be in the following manner:

Application shall be made on forms to be furnished by the commissioner of health of Baltimore city and the applicant shall specify the orifice size for every burner and the correct gas rate per hour for burners that may be allowed with adjustable orifice; and the applicant shall furnish such other information as may be required by the commissioner to secure proper registration and identification of any such tubing, appliance, appurtenance, device, sample, or model thereof; and every such application shall be accompanied by a certificate satisfactory to the commissioner that the tubing, appliance, appurtenance, device, sample, or model thereof conforms to the specifications of the American Gas Association (a national organization, one of the functions of which is to reduce the hazard from the use of manufactured (illuminating) gas), which such specifications shall be made a part of the rules and regulations to be promulgated by the commissioner of health; if the specifications of the said American Gas Association shall not apply thereto, then the same shall conform to specifications promulgated by the "gas reference committee" hereinafter created, which specifications shall likewise be made a part of the rules and regulations of the commissioner of health; after the application is filed and the certificate thereto is found satisfactory by the commissioner as complying with the specifications of American Gas Association or the "gas reference committee," a certificate of registration shall be issued by the commissioner of health. If the commissioner shall not be satisfied with the certificate attached to any application for registration, he shall notify the applicant forthwith, stating his reasons therefor, and such certificate shall be corrected accordingly: *Provided*, In any such case the applicant may request the "gas reference committee" to consider the certificate as filed and the objections of the commissioner, and, upon such request, the commissioner shall obtain advice thereon of the "gas reference committee" which advice shall be considered by, but not binding upon, the said commissioner. All tubing, appliances, appurtenances, or devices shall bear an identification number or designation which shall be given by the commissioner of health, and the number or designation may be the manufacturer's regular trade name and number, and when applied for by such manufacturer, it shall be stated in the application for registration: *Provided*, That nothing herein contained shall be construed to apply to tubing, appliances, appurtenances, or devices used for strictly experimental purposes, or to gas-burning appliances for strictly industrial use as may be defined in the rules and regulations to be promulgated by the commissioner of health.

SEC. 2. That the commissioner of health may at any time cause an examination to be made by his inspectors of a sample of tubing, appliance, appurtenance, or device when operated under gas service conditions, such, for example, as gas quality and pressure as obtains in the city of Baltimore, and if it shall be found upon such examination that such tubing, appliance, appurtenance, or device does not comply with the specifications of said American Gas Association or "gas reference committee" aforesaid, the commissioner of health shall send a report of the tests found after examination to the registrant of the said tubing, appliance, appurtenance, or device and the said registrant shall be accorded every reasonable opportunity to conform the tubing, appliance, appurtenance, or device to the standards of performance of the American Gas Association or the "gas reference committee." If the registrant shall not correct within a reasonable time the hazardous feature or features of the tubing, appliance, appurtenance, or device, the commissioner of health shall cancel the registration of said tubing, appliance, appurtenance, or device and notify the registrant in writing that after the expiration of 10 days, no such tubing, appliance, appurtenance, or device shall be installed, sold, or offered for sale in the city of Baltimore: *Provided*, That any action of cancellation taken by the commissioner of health shall not be construed to prohibit the former registrant from reapplying for registration, in which event, all the provisions relating to original applications shall apply. At any time prior to the cancellation of registration by the com-

missioner of health, the registrant may request the "gas reference committee" to review the facts as to the hazard of any tubing, appliance, appurtenance, or device, and upon such request, the commissioner of health shall obtain the advice of such committee, which advice shall be considered by, but not binding upon, the commissioner of health.

SEC. 3. That the commissioner of health is authorized to cancel the registration of any model of tubing, appliance, appurtenance, or device if any of the rules and regulations of the commissioner of health are violated in the design or performance of any such model or sample: *Provided*, No cancellation shall be made without the registrant being first accorded an opportunity of a hearing and to show cause why the registration should not be canceled, and upon the decision, after hearing by the commissioner, that such rules are being violated and the application should be canceled, cancellation shall be effective 10 days after the decision of the commissioner.

SEC. 4. That appurtenances and devices herein referred to shall be construed to include instruments for use in connection with gas tubing or appliances which affect the normal and regular use of such tubing or appliances without said device, such as economy devices, accessories, solid tops, and other such equipment which is intended to be used in conjunction with self-contained appliances and which can not be considered as a gas-consuming appliance.

SEC. 5. That any person, firm, or corporation may without charge secure from the commissioner of health information regarding the registration with, or examination by, the said commissioner of any tubing, appliance, appurtenance, or device, and on the 1st day of February, May, August, and November of each year, or as near thereto as possible, the commissioner of health shall issue to all licensed dealers in gas appliances a printed list of all appliances which have been registered, and shall advise promptly, but not more often than once each week, all appliances which have been newly registered with the department, or the registration of which have been revoked.

SEC. 6. *Licensing of dealers.*—That no person, firm, or corporation shall display, sell or offer for sale in the city of Baltimore, any tubing, appliance, appurtenance, or device for use with, by or for the combustion of manufactured (illuminating) gas, without first having secured from the commissioner of health a license to be designated "gas appliance dealer's license" for which the sum of \$5 shall be paid, which said license shall be renewed annually from the date of issuance, and said license shall be posted conspicuously to public view in the place of business of the dealer: *Provided*, That whenever the commissioner of health shall have refused or revoked the registration of any tubing, appliance, appurtenance, or device, the commissioner of health may likewise suspend or revoke any license issued to a dealer under this section, who shall thereafter display, sell, or offer for sale any tubing, appliance, appurtenance, or device, the registration of which has been refused or revoked, the dealer being first accorded the opportunity of a hearing to show cause why said license should not be revoked, and the commissioner in revoking said license may in his order provide that it shall be a permanent revocation or a suspension for a definite period: *Provided*, That nothing herein contained shall be construed to require the holder of a trader's license issued under the laws of the State of Maryland to pay the fee herein designated; but, such holder of a trader's license shall nevertheless be required to obtain the license herein mentioned, but no fee shall be charged therefor by the commissioner upon his being satisfied that the applicant is the holder of a trader's license from the State: *And provided further*, That nothing herein contained shall be construed to require an industrial appliance dealer to secure the license required by this section.

Registration of gas fitters and workmen.—SEC. 7. That all persons now engaged or who shall hereafter engage in the trade of gas fitting, and all workmen now engaged or who shall hereafter engage in gas fitting, shall be subject to examination and registration by the commissioner of health of Baltimore city, the registration and examination to be in the following manner:

Application shall be made on forms to be furnished by the commissioner of health of Baltimore city, said application to be accompanied by the sum of \$1, and thereafter the commissioner of health, or such persons as may be designated by him, shall subject each applicant to an examination testing his knowledge of the trade and work of gas fitting, and such examination may be either oral or in writing, and may be accompanied by such practical demonstration as may be required: *Provided*, That any person licensed by the Board of Plumbing Examiners of the State of Maryland shall not be required to pay the fee herein mentioned: *And provided further*, That nothing in this section shall be construed to subject any person to examination or registration when engaged purely in

making industrial installations or adjustments, and any person, firm, or corporation engaged in gas fitting, who shall employ or engage any person not registered and examined in accordance with this section shall be subject to prosecution hereunder.

SEC. 8. That whenever the work of a registered gas fitter is believed to be unsatisfactory after inspection, or if a gas fitter shall violate any of the rules and regulations promulgated by the commissioner of health, his registration may be suspended or revoked by the commissioner of health upon notice by said commissioner to such gas fitter that a hearing will be accorded him on a certain day to show cause why such suspension or revocation should not be made, and after hearing, the commissioner may suspend temporarily or revoke permanently the registration of any such gas fitter: *Provided*, That whenever the license shall have been revoked permanently, the person shall not be prohibited from reapplying, but such new application shall not be made in a less period than that designated by the commissioner from the date of permanent revocation, and all of the provisions for original applications shall be applicable.

SEC. 9. That all flue connections for gas-burning appliances shall be made in accordance with rules and regulations to be promulgated by the commissioner of health.

SEC. 10. That all gas light, gas-lighting lamps and fixtures and appurtenances thereof, shall be exempt from anything contained in this ordinance.

SEC. 11. That the commissioner of health in collaboration with the "gas reference committee" as in the next succeeding section created, is hereby authorized and directed to prepare and promulgate such rules and regulations as may be necessary to carry out and enforce all the provisions of this ordinance: *Provided*, That all rules and regulations so promulgated shall be pursuant to, but not in conflict with, the provisions of this ordinance, and all rules and regulations promulgated as aforesaid shall be published and sent to each registrant and to any person applying therefor.

SEC. 12. That there is hereby created a "gas reference committee" which shall consist of the commissioner of health, who shall be chairman thereof, and one representative to be chosen from or appointed by each of the following organizations: Public Service Commission of Maryland; inspector of buildings; the Consolidated Gas Electric Light & Power Co. of Baltimore City, a corporation; Master Plumbers' Association of Maryland; Retail Gas Appliance Dealers' Association of Baltimore, and the American Gas Association; and this committee by a majority vote after one month's previous written announcement to each member, may elect to add another representative of an organization which represents the interests respectively of the public, gas manufacturing industry, the gas appliance dealers, plumbers, and gas fitters.

SEC. 13. That any person, firm, or corporation violating any of the provisions of this ordinance shall be subject to prosecution either before a justice of the peace in Baltimore city, having criminal jurisdiction, or by indictment of the grand jury of Baltimore city, and upon conviction shall be subjected to a fine of not less than \$5 nor more than \$100 for each offense, and shall render the license of the violator liable to revocation by the commissioner of health; and all ordinances, or parts of ordinances, inconsistent with the provisions of this ordinance, are hereby repealed.

SEC. 14. That this ordinance shall take effect three months from the date of its approval.

CLEVELAND, OHIO

Stoves and Other Heating or Cooking Devices—Connection with Chimney or Flue. Gas Stoves—Record of Sale or Hire of. (Ord. 67245, January 26, 1925)

SECTION 1. That section 409 of the Municipal Code of the city of Cleveland be amended so as to read as follows:

SEC. 409. *Flues and chimneys*.—No stove or other heating or cooking device in which coal, coke, wood, gas, oil, or other fuel is consumed, shall be used in any dwelling house unless such stove or other device is equipped with a proper smoke or fumes pipe connected with a chimney or flue affording a continuous outlet above the roof to the open air, and unless every such chimney or flue shall be maintained in good repair and free from all deposits: *Provided, however*, That this section shall not apply to gas plates in private laundries, nor to portable stoves in which gasoline, kerosene, alcohol, or electricity is used as the sole means of producing heat.

No person, firm, or corporation shall sell, barter, or lease or offer for sale, barter, or lease any appliance in which solid or gaseous fuel is consumed, for

cooking or for the heating of hot water, or of places used for human occupancy, unless such appliance used for cooking or heating purposes shall be so constructed as to adequately convey to a flue outlet of sufficient size all of the smoke, fumes, or other by-products of combustion that may be formed or produced by such appliance: *Provided, however,* That this section shall not apply to gas plates nor to portable stoves in which other than solid or gaseous fuel is used as the sole means of producing heat.

Every person, firm, or corporation offering for sale, barter, or hire, or having sold, bartered, or let out for hire any gas stove, whether for cooking or heating purposes or both, shall keep a record or register containing the names and places of residence of all persons, firms, or corporations to whom such gas stoves are sold, bartered, or let out for hire. Such register or record shall show the date of sale, barter, or letting out for hire together with such other information, as may be required by the commissioner of health, and shall be always open for inspection to the police authorities and to the officers charged with the enforcement of this ordinance.

SEC. 2. That section 409 of the Municipal Code of the city of Cleveland in effect October 1, 1924, be and the same is hereby repealed.

ELIZABETH, N. J.

Offensive Trades—Permit. (Reg. Bd. of H., June 10, 1926)

SEC. 39. No person or persons shall carry on any trade, manufacture, or business within the city of Elizabeth which may be noxious or offensive to the inhabitants of said city or any part thereof, and which may be attended by noisome and injurious odors, without having first obtained a permit from the board of health, such permit to be granted only on such terms and conditions as shall be from time to time prescribed by said board, to which terms and conditions the applicant or applicants for such permit shall subscribe before receiving said permit, and such permit shall not be transferable in case of sale or transfer of the business, in which case a new application must be made in the name of the parties who propose to conduct the business, and the said trade, manufacture, or business may be at any time summarily abated in case of failure or neglect to comply with the terms and conditions of the permit, and any such trade, manufacture, or business which may be established within the said city of Elizabeth without having first obtained the permit hereinbefore provided for shall be summarily abated. Any person or persons who may violate this section shall be liable to a penalty of not less than \$20 nor more than \$100 per day for each and every day in which such trade, manufacture, or business may be carried on within the city of Elizabeth.

FRESNO, CALIF.

Medicine—Distribution of Free Samples Unlawful. (Ord. 1154, 1925)

SECTION 1. It shall be unlawful for any person, firm, or corporation to distribute, or cause to [be] distributed, on the streets of the city of Fresno, or from house to house, or from place to place within said city, free samples of any medicine, tablets, or medical preparation.

SEC. 2. Any person, firm, or corporation violating the provisions of this ordinance shall be guilty of a misdemeanor and upon conviction thereof shall be punished by a fine not exceeding \$299, or imprisonment not exceeding 90 days, or by both such fine and imprisonment.

MILWAUKEE, WIS.

Monoxide Poisoning—Preparation and Distribution to Garage Owners of Placards Warning of Danger of Death from. (Ord. November 9, 1925)

SECTION 1. There is added to the Milwaukee Code of 1914 one new section to read:

SEC. 910.5. The commissioner of health is empowered to prepare and cause to be distributed in the city of Milwaukee to the owner or owners of every public and private garage, barn, or building in which motor vehicles are kept, for display therein, a suitable placard or sign warning of the danger of death from monoxide poison caused by automobile motors permitted to be run and operated in unventilated buildings, barns, or closed garages. These placards or signs shall be of a design and size and contain the printed matter prescribed by the commissioner of health.

Rendering Plants—Erection and Maintenance. (Ord. June 11, 1923)

SECTION 1. Subdivision (d) of section 474 of the Milwaukee Code of 1914 is hereby repealed.

SEC. 2. Section 473 of the Milwaukee Code of 1914 is hereby amended to read as follows:

SEC. 473. Rendering plants for rendering animal fat, excepting such plants as are odorless and are so arranged that they will not discharge gases or exhaust into the open air, shall not be permitted to be erected or maintained within the limits of the city of Milwaukee.

NEW YORK, N. Y.**X-ray Laboratory—Definition. (Res. Bd. of H., July 24, 1923)**

Resolved, That section 1 of article 1 of the Sanitary Code be and the same is hereby amended by the addition of a new definition, to be known as definition 48, to read as follows:

48. "X-ray laboratory" shall be taken to mean and include any room or rooms, structure or structures especially fitted with apparatus for the purpose of conducting any kind of treatment or investigation by means of X rays.

X-ray Laboratories—Qualifications of Person in Charge. (Reg. Bd. of H., February 6, 1926)

Every X-ray laboratory shall at all times be in charge of and under the direction of a duly licensed physician or other person who is licensed under the laws of this state to diagnose and treat disease and whose knowledge, experience, and qualification to use an X-ray machine are satisfactory to the health department.

Certain Hair Dyes and other Toilet Preparations—Sale, etc., Prohibited. (Reg. Bd. of H., November 9, 1926)

[Sanitary Code.] SEC. 128. *Hair dyes and other toilet preparations containing paraphenylene-diamin, lead, or mercury or any other poisonous ingredient; sale and distribution prohibited.*—No person shall sell, offer for sale, give away, deal in, or supply or have in his or her possession with intent to sell, offer for sale, give away, deal in, or supply, any hair dye or other toilet preparation intended for human use, which contains paraphenylene-diamin, lead or mercury in any form.

No person shall sell, offer for sale, give away, deal in, or supply or have in his or her possession with intent to sell, offer for sale, give away, deal in, or supply any hair dye or other toilet preparation intended for human use which contains any poisonous ingredient other than paraphenylene-diamin, lead, or mercury in any form.

Drugs, Medicine, Animal Hair, Animal Skins, etc.—Seizure, Labeling, and Disposal when Unfit for Human Use, Contaminated, etc. (Res. Bd. of H., October 23, 1923)

Resolved, That section 129 of the Sanitary Code be and the same is hereby amended and made to read as follows:

SEC. 129. *Condemnation and destruction of drugs, animal hairs, skins, etc., and articles made from animal hairs, etc., authorized.*—Upon any drug, medicine, animal hair, animal skin, or animal hide, or articles made from animal hairs, furs, animal skins, or hides being found by an inspector or other duly authorized representative of the department of health in a condition which renders it, in his opinion, unfit for human use, externally or internally, or contaminated, or in a condition or of a weight, quality, or strength, forbidden by the provisions of the Sanitary Code, such inspector or duly authorized representative of the said department is hereby empowered and directed to immediately seize the said drug, medicine, animal hair, animal skin, or animal hide, or articles made from animal hairs, furs, animal skins, or hides and affix thereto a label bearing the words, "Seized by the board of health." Such drug, medicine, animal hair, animal skin, or animal hide, or articles made from animal hairs, furs, animal skins, or hides when so labeled shall not be touched, disturbed, sold, offered for sale, or given away, but shall be released, destroyed, or otherwise finally disposed of, as the board of health shall direct.

Shellfish for Bait or Other Than Food Purposes—Taking and Dealing in.
(Reg. Bd. of H., July 30, 1925)

[Sanitary Code.] SEC. 164—A. *Shellfish for bait or other than human food purposes; permit required.*—No person shall dig, rake, tong, dredge, or otherwise remove any shellfish from waters located within the city of New York, without a permit from the board of health, nor shall any person deal in, have, keep, offer for sale, or sell any shellfish for use as bait or engage in the business of handling shellfish for other than food purposes without a permit from the board of health, or otherwise than in accordance with the terms of said permit and the regulations of said board.

[Regulations governing the sale of shellfish for bait or other than food purposes.]
REGULATION 1. Every holder of a permit shall keep same on his person at all times.

REG. 2. Every dealer in shellfish for bait or other than food purposes shall keep a full and accurate record showing the source of supply of shellfish and the names and addresses of the persons to whom sold.

REG. 3. Every dealer in shellfish for other than food purposes shall not keep, have, or handle such shellfish at the same premises where shellfish for human food purposes is held, kept, or offered for sale.

REG. 4. Every container wherein shellfish for bait or other than food purposes is held shall be clearly and plainly marked "Shellfish for bait and not for human food purposes."

Plumbing—Keeping in Good Order and Repair. Gas Pipes—Maintenance of System of. (Reg. Bd. of H., November 9, 1926)

[Sanitary Code.] SEC. 277. *Plumbing and gas piping to be kept in good order and repair.*—All house drains, house sewers, waste and soil pipes, traps and water and gas pipes in any building or premises shall at all times be kept in good order and repair so that no gases or odors shall escape therefrom and so that the same shall not leak, and every owner, agent, lessee, or other person having the management or control of any building wherein manufactured gas is used for lighting, cooking or heating purposes shall maintain in the said building a system of gas pipes of a size sufficient to furnish and supply an adequate volumetric flow of manufactured gas to all such lighting, cooking, and heating fixtures or appliances used or intended to be used in the said building or premises; and all vent pipes shall be kept in good order and repair and free from obstructions.

Flexible Gas Tubing—Sale—Registration—Testing. (Reg. Bd. of H., June 11, 1926)

[Sanitary Code.] SEC. 344. *Flexible gas tubing; term defined; registration required; sale and use regulated.*—No person shall have, sell, offer for sale, give away, deal in or supply any flexible gas tubing, unless such flexible gas tubing shall have been registered with the board of health and a certificate of registration has been issued by the board of health certifying that such flexible gas tubing has been examined and tested and found to comply with the regulations of the said board. The term "flexible gas tubing" shall be taken to mean and include any nonrigid hosing or piping and the end pieces thereof securely attached thereto and used or intended to be used to convey manufactured gas for domestic, manufacturing, or other purposes. It shall be the duty of every manufacturer of flexible gas tubing before offering same for sale in the city of New York to procure a certificate of registration of such flexible gas tubing from the board of health in accordance with the regulations of said board.

Any flexible gas tubing found to be defective or imperfect or leaky, or unfit for use by reason of defects or imperfections therein, or if such flexible gas tubing shall not have been properly registered with the board of health, or if such flexible gas tubing be fraudulently marked or registered, or if it shall not conform in all respects with the regulations of the board of health governing such flexible gas tubing, may be seized by any inspector or other duly authorized representative of the board of health, condemned, destroyed or held for such action as the board of health may direct.

[Rules and regulations governing the sale and use of flexible gas tubing.]
REGULATION 1. *Applications.*—Applications for certificates of registration of flexible gas tubing shall be made on blank forms furnished for such purpose by the board of health. Such application shall contain the following information:

1. Name and address of applicant:

A. If a corporation, full corporate name, place of incorporation, names and positions of officers, address of principal place of business.

B. If a partnership, proper name of partnership, name of individuals composing same, principal place of business.

2. *Place of manufacture.*—Where place of manufacture is located outside of the city of New York, the name and address of local agent or distributor in the city of New York must be stated.

3. Description of the flexible gas tubing.

4. Designating name or trade-mark.

5. Any additional information which may be required by the board of health.

REG. 2. *Sample to be furnished by applicant.*—It shall be the duty of every manufacturer of flexible gas tubing, before selling or offering same for sale in the city of New York, to cause a sample or samples thereof to be submitted to the board of health of the city of New York for test and examination.

REG. 3. *Certificate of registration.*—Before the sale or offer for sale of any flexible gas tubing, the manufacturer thereof shall procure a certificate of registration showing that samples of such flexible gas tubing having been submitted to the board of health for test, that such tests have been made and that such flexible gas tubing has been found to comply with the provisions of these regulations. The certificate of registration issued by the board of health shall designate such flexible gas tubing by a number by which it shall thereafter be known.

REG. 4. *Tubing to be stamped.*—All flexible gas tubing approved by the board of health shall have stamped thereon, plainly and legibly, or on a metal tag securely affixed thereto, the following: "D. of H., N. Y., Reg. No.—," followed by the proper number as set forth in the certificate of registration issued for and relating to the particular flexible gas tubing stamped as hereinbefore required.

REG. 5. *Definitions.*—a. "Sample tubing" shall be taken to mean flexible gas tubing six feet in length.

b. Slip ends shall be taken to mean and include devices of rubber with internal corrugations conforming with the corrugations of the standard hose nozzle, maintained by the board of health of the city of New York.

c. Leakage shall be taken to mean a loss of 0.02 cubic feet or more per hour per 6-foot length of flexible gas tubing as determined by a gas meter, the dial of which is graduated to read 0.01 cubic foot when such tubing shall be subjected to a gas pressure of 6 inches of water for a period not less than 30 minutes, with one end thereof plugged and the other end connected to the outlet side of such water.

REG. 6. *Flexible gas tubing; term imperfect defined.*—Flexible gas tubing shall be held and deemed to be imperfect—

a. If, when made of bare metal tubing, it depends for its tightness on a thread-like rubber or similar packing.

b. If constructed with a metal helix which is not gas-tight and which is not of one continuous length without splices or other joints.

REG. 7. *Flexible gas tubing; term defective defined.*—Flexible gas tubing shall be held and deemed to be defective—

a. Where, after being laid on a hard flat surface and having applied to each lineal inch of its length a 75-pound weight with a smooth metallic face 1 inch wide, such flexible gas tubing shows leakage.

b. Where, after being subjected to a pull of 50 pounds for five minutes applied to one end by some mechanical means while the other end thereof is securely attached to a fixed support, such flexible gas tubing shows leakage.

c. Where, after being attached by one end to a standard hose nozzle fixed in a vertical, upright position with a 5-pound weight attached to the other end, and such weight elevated 30 inches and dropped a distance of 30 inches, such flexible gas tubing shows leakage.

d. Where such tubing shows leakage or fails to return to its original position after having been extended its full length, one end attached by a clamp or other means to a fixed support and subjected to a twisting movement, clockwise and counter-clockwise through 180° for each foot of length.

e. Where such tubing shows leakage when kept in a temperature of 32° F. for six hours, after having been wrapped snugly one and one-half times around a cylindrical form 3 inches in diameter for 30 minutes.

f. Where such tubing becomes sticky or any material oozes through the outside covering or inside the tubing after such tubing is kept in dry air for a period of six hours at a temperature of 125° F. and then in saturated air at 125° F., or after such exposure for six hours each to dry air and saturated air at 125° F.

shows leakage after having been cooled and wrapped snugly one and one-half times around a cylindrical form 3 inches in diameter for 30 minutes.

REG. 8. *Slip ends imperfect; defective.*—A slip end shall be held and deemed to be imperfect or defective—

a. When the normal inside diameter shall be enlarged more than 10 per cent after having been forced over a form 20 per cent larger than its internal diameter, and permitted to so remain for two weeks.

b. When it fails to withstand a longitudinal pull of at least 13 pounds as determined by a spring balance attached to one end, the other end being attached to a standard hose nozzle so that at least three corrugations are engaged.

OIL CITY, PA.

Rags, Clothing, Paper, etc., Taken from Garbage Cans, Wagons, or Disposal Plant—Sale, etc., Prohibited. (Ord. 1088, September 26, 1924)

SECTION 1. The sale, offering for sale, giving away, or having same in possession for the purpose of sale by any person, persons, firm, or corporation of any rags, clothing, paper, foodstuffs, rope, bottles, or junk of any kind taken from garbage cans, garbage wagons, or disposal plant is prohibited: *Provided, however,* That this section shall not prohibit the transporting of such refuse or garbage from the place where same is produced directly to the disposal plant.

SEC. 2. Any person violating any of the provisions of this ordinance shall, upon conviction thereof, before the mayor or any magistrate of said city of Oil City, be subject to a penalty of not less than \$5, nor more than \$100, and in default of payment of said penalty and cost, when duly imposed, to be committed to the county jail for a period not exceeding 30 days.

SAN DIEGO, CALIF.

Reduction Works, Fertilizer Plants, etc.—Permit—Inspection—Construction and Operation. (Ord. 9853, March 16, 1925)

SECTION 1. It shall be unlawful for any person, firm, or corporation to carry on, conduct, or operate, either as owner, lessee, agent, or superintendent, the business of steaming, boiling, reducing, rendering, or cooking any animal substance or matter, fish substance or matter, or vegetable substance or matter for the manufacture of fertilizer, fats, oils, chicken meal, or any by-product of any kind or character, or to conduct, operate, maintain, or carry on either as owner, lessee, agent, or superintendent, or otherwise, any reduction works or fertilizer plant, or other place where the business of steaming, boiling, reducing, rendering, or cooking any animal substance or matter, fish substance or matter, or vegetable substance or matter, for the manufacture of fertilizer, fats, oils, chicken meal, or any by-product of any kind or character, is carried on or maintained, within the city of San Diego, Calif., without first having obtained a permit therefor as in this ordinance provided.

SEC. 2. Every applicant for such permit shall file with the health department of the city of San Diego a written application, which shall state the name and address of the applicant, a description of the property, its location, street and number wherein and whereon it is proposed to conduct such establishment or business as mentioned in section 1 and such other information as the health department of the city of San Diego by regulation may require.

Every applicant for such permit shall at the time of making such application deposit with and pay to the clerk designated by the health department of the city of San Diego to receive such applications the annual inspection fee herein-after in this ordinance established.

SEC. 3. Upon receipt of such application, accompanied by the fee herein required, it shall be the duty of the health department of the city of San Diego to investigate the matters set forth in such application; and the sanitary conditions in and about the place wherein and whereon it is proposed to conduct the business mentioned in the application, and if it shall appear to said health department, or any employee designated by the health department to perform such duties, that the statements contained in the application are true, and that the existing conditions in the place mentioned in such application comply with the provisions of this ordinance and the State laws in force at the time such application is considered, and conforms with the rules and regulations of the health department of said city and to the laws of the State of California and the rules and regulations of the State board of health, and the rules and regulations of the department of agriculture, bureau of animal industry, State of

California, and the rules and regulations of the fish and game commission, State of California, pertaining to establishments of the character designated in section 1 of this ordinance, a permit shall be granted only upon the express condition, however, that it shall be subject to revocation or suspension by said health department upon a showing satisfactory to said health department of a violation by the holder of such permit, his employee, servant, or agent or any other person acting with his consent, or under his authority, of any provisions of any ordinance of the city of San Diego, or any law of the State of California, or any rule of the health department of said city, or the rules and regulations of the department of agriculture, bureau of animal industry, State of California, or the rules and regulations of the fish and game commission, State of California, pertaining to the establishments mentioned in section 1 of this ordinance, regulating places of the character designated in said section 1: *And provided further, That such permit shall be transferable upon application to the health department and with its consent.*

Sec. 4. *Inspection fees.*—Every person, firm, or corporation applying for a permit under the provisions of this ordinance shall at the time of making application for such permit pay an inspection fee of \$5 to the clerk or employee of the health department of said city designated to receive such fees. All moneys received as inspection fees under the provisions of this ordinance shall be paid into the city treasury. A permit for which application is made under the provisions of this ordinance may be granted at any time during the year, but all permits granted hereunder shall expire on the 31st day of December of the year in which the same are granted.

Sec. 5. The board of health, its health officer, or agent is empowered and directed at any and all times to visit such establishments as are designated in section 1 of this ordinance, for the purpose of inspecting the sanitary condition of buildings, drainage, sewage, cleanliness, equipment, utensils, employees, water supply, disposal of refuse, and they are further authorized and empowered to enforce all the provisions of this ordinance and all the laws of the State of California and the rules and regulations of the department of agriculture, bureau of animal industry, State of California, and the rules and regulations of the fish and game commission, State of California. The provisions of said laws and any amendments thereto are by this reference adopted as a part of this ordinance.

Sec. 6. The health department by regulation shall provide suitable rules and regulations for such establishments as are designated in section 1 hereof, as shall be necessary to prevent such establishments from becoming a nuisance, or in any way affecting the peace, health, and safety of residents of the city of San Diego.

Sec. 7. Floors and gutters shall be constructed of concrete or other material with smooth finish. Walls, ceilings, partitions, posts, doors, and other parts of all structures shall be of such materials, construction and finish as will permit them to be readily and thoroughly cleaned.

Sec. 8. It shall be unlawful to accept for any process of rendering or reduction any fish or parts of fish in any state of decomposition or putrefaction. All decomposed or putrefied fish, or parts of fish, shall be condemned and disposed of in such manner as the health department by regulation shall require.

Sec. 9. The escape into the open air of any offensive or obnoxious odors or gases from any material in the process of reduction, under the provisions of this ordinance, is hereby declared to be a public nuisance, and may be summarily abated by the health officer of the city of San Diego.

Sec. 10. All fish or parts of fish received by reduction plants for the process of reducing or rendering shall be immediately processed, and the processing of same shall continue until the entire catch or supply shall have been entirely reduced. The health department shall be notified when all such reduction begins, whereupon an inspection shall be made during the process of reduction.

Sec. 11. Parts of fish or offal of fish shall be removed only under permit and under the direction of the health officer or employee of the health department designated to perform such duties. Fish, or parts of fish, or fish guts, if not suitable for reduction, shall be condemned and disposed of in a manner designated by the health department.

Sec. 12. Any person, firm, or corporation violating any of the terms or provisions of this ordinance shall be guilty of a misdemeanor, and upon conviction thereof shall be punished by a fine not to exceed \$500, or by imprisonment in the city jail for a period not exceeding six months, or by both such fine and imprisonment.

MOSQUITOES

LAUREL, MISS.

Mosquitoes—Prevention of Breeding. (Ord. June 14, 1926)

SECTION 1. It shall be unlawful to have, keep, maintain, cause or permit, within the (incorporate) limits of Laurel, any collection of standing or flowing water in which mosquitoes breed or are likely to breed, unless such collection of water is treated so as to effectually prevent such breeding.

SEC. 2. Any collection of water considered by section 1 of this ordinance shall be held to be contained in ditches, pools, ponds, excavations, holes, depressions, open cesspools, privy vaults, fountains, cisterns, tanks, shallow wells, barrels, troughs (except those in frequent use), urns, cans, boxes, bottles, tubs, buckets, defective house-roof gutters, tanks of flush closets, or other similar water containers.

SEC. 3. The methods of treatment of any collection of water, specified in section 2, directed toward the prevention of breeding mosquitoes shall be approved by the accredited health officer, and may be of the following:

(a) Screening with wire netting of at least 16 mesh to the inch each way, or with any other material which will effectively prevent the ingress or egress of mosquitoes.

(b) Complete emptying every seven days of unscreened containers together with their thorough drying and cleaning.

(c) Using a larvicide approved and applied under the direction of the health officer.

(d) Covering completely the surface of the water with kerosene, petroleum, or paraffin oil once every seven days.

(e) Cleaning and keeping sufficiently free of vegetable growth and other obstructions, and stocking with mosquito-destroying fish.

(f) Filling or draining to the satisfaction of the health officer, his agent, or accredited representative.

(g) Proper disposal, by removal or destruction, of tin cans, boxes, broken or empty bottles, and similar articles likely to hold water.

SEC. 4. The natural presence of mosquito larvae in standing or running water shall be evidence that mosquitoes are breeding there, and failure to prevent such breeding within three days after notice by the health officer, his authorized agent, or representative shall be deemed a violation of this ordinance.

SEC. 5. Should the person or persons responsible for conditions giving rise to the breeding of mosquitoes fail or refuse to take necessary steps to prevent the same within 3 days after due notice has been given them, by the health officer, or his agent, [the health officer?] is hereby authorized to do so, and all necessary costs incurred by him for this purpose shall be charged against the property owner or other person offending, as the case may be.

SEC. 6. For the purpose of enforcing the provisions of this ordinance, the health officer, or his duly accredited agent acting under his authority, may at all times enter in and upon any premises within his jurisdiction, and any person or persons charged with any of the duties imposed by this ordinance failing within the time designated by this ordinance or within the time stated in the notice of the health officer, as the case may be, to perform such duties, or to carry out the necessary measures to the satisfaction of the health officer, shall be deemed guilty of violation of this ordinance, and for each day after the expiration of this time that said person fails to comply with this ordinance shall be deemed guilty of a separate violation of this ordinance.

SEC. 7. Any person who shall violate any provision of this ordinance shall on each conviction be subject to a fine of not less than \$1 or more than \$25 in the discretion of the court.

SPITTING

ELIZABETH, N. J.

Spitting—Prohibited in Public Places. (Reg. Bd. of H., June 10, 1926)

SEC. 11a. Spitting upon sidewalks and street crosswalks or upon the floors of public buildings, railroad stations, and all other public places and on any part of street railway cars or other public conveyances is hereby forbidden. Any person violating any of the provisions of this section shall pay a penalty of \$10.

MONTCLAIR, N. J.

Spitting—Prohibited in Public Places. (Ord. April 7, 1925)

ARTICLE 5. SPITTING IN PUBLIC PLACES

SECTION 1. Spitting upon the floor, platform, or any other part of a public conveyance, upon the floor, steps, or stairs of any public building, school, hall, church, store, shop, or railway station; upon the sidewalk of any public or private street; upon the pathway of any park, or in any other public place, is hereby declared to be a nuisance, and any person or persons creating such a nuisance shall, upon conviction thereof, forfeit and pay a penalty of \$2 for each offense.

STREET CARS

CAMBRIDGE, MASS.

Street Cars—Ventilation, Cleaning, and Disinfection—Posting of Regulations. (Reg. Bd. of H., Effective April 1, 1923)

135. Every street railway passenger car (closed) operated in Cambridge shall, while so operated, be properly ventilated.

Such cars shall be thoroughly aired at the end of each round trip.

Every such car shall be thoroughly cleansed at the end of each day's service and shall be disinfected once each week.

These regulations shall be posted in a conspicuous place in every such car and all car houses in Cambridge.

NEW ROCHELLE, N. Y.

Street Cars—Cleaning—Heating—Curtains on Open Cars—Conveyance of Soiled Clothing and Bedding on. (Reg. Bd. of H., April 9, 1925)

Sec. 27. Each car of every surface railroad in the city of New Rochelle shall at least once in every 24 hours be thoroughly cleaned, and shall be kept in a clean and sanitary condition.

Each such car shall, between October 1 and May 1 of each year, be heated to a maintained temperature of 60° F.

Each open car shall be equipped with curtains constructed and applied so that they can be easily pulled and fastened down for the protection of passengers against the action of the elements.

No soiled or dirty articles of clothing or bedding shall be conveyed on any surface car except upon the front platform of such car.

SWIMMING POOLS AND BATHING BEACHES

DURHAM (CITY AND COUNTY), N. C.

Swimming Pools and Bathing Beaches—Permit—Reports by Operators—Sanitary Requirements. (Reg. Bd. of H., February 12, 1924)

SECTION 1. That the rules and regulations governing swimming pools as passed by the Durham County and city board of health May 8, 1923, be repealed and in lieu thereof the following be substituted:

SEC. 2. That the term "swimming pool" as used in this ordinance shall be construed to mean a natural or artificial body of water to which the public is admitted for the purpose of swimming recreation, and which is dependent upon artificial means of purification by filtration and subsequent sterilization, or by refilling with clean water at periodic intervals, and having a total capacity of 1,000,000 gallons or less.

SEC. 3. That the term "bathing beach" as used in this ordinance shall be construed to mean a natural or artificial body of water to which the public is admitted for the purpose of swimming recreation and which is not dependent upon artificial means of purification, and having a total capacity of 1,000,000 gallons or more and a daily influx of fresh water of not less than 100,000 gallons.

SEC. 4. That any person, firm, or corporation owning or operating any swimming pool or bathing beach in the city or county of Durham shall on or before the 15th day of May, 1924, and each subsequent year thereafter that the pool is operated, make application to the superintendent of health of the city and county of Durham for a permit to operate said swimming pool for the season following. A permit shall be granted by the superintendent of health when it has been determined that the provisions of this ordinance are being complied with constantly.

SEC. 5. The superintendent of health shall have full power and authority to revoke the permit issued to any person, firm, or corporation when it is determined that the provisions of this ordinance are being violated, and his action shall be final.

SEC. 6. It shall be the duty of every person, firm, or corporation operating a bathing beach or swimming pool, as previously defined, to file a written report with the superintendent of health each week of the season covering the general sanitary conditions which prevail at the pool and surrounding premises. The superintendent of health shall furnish blank forms for making the reports.

SEC. 7. It shall be the duty of every person, firm, or corporation operating a swimming pool, as previously defined in this ordinance, to deliver to the department of health laboratory two samples of water collected respectively from the pool and the intake source once each week. Said samples to be delivered on Monday of each week in sample bottles furnished by the department of health: *Provided, however,* That if the intake source be from the city water supply, only the sample from the pool shall be required.

SEC. 8. The total number of bathers using a swimming pool during any period of time shall not exceed 10 persons per thousand gallons of new, clean water in the pool, nor 7 persons per thousand gallons of new, clean water added to the pool during the same period of time. In no instance shall a swimming pool be operated longer than 12 days without completely draining and refilling with new, clean water from an approved source: *Provided, however,* That in the event the pool be equipped with an approved purification plant, then the time of draining and refilling the pool shall be governed by the bacteriological findings of the pool water.

SEC. 9. The superintendent of health shall at any time have the right and it shall be his duty to order a swimming pool or bathing beach closed to the public and the water drained therefrom, if, in his opinion, the water be exces-

sively contaminated or any other condition prevail which would be a menace to the public health and safety.

SEC. 10. The management of any swimming pool or bathing beach in the city or county of Durham shall be responsible for any person entering the pool who is afflicted with any contagious or infectious disease, and it shall further be the duty of the management to report to the superintendent of health any person whom he suspects of being afflicted with any communicable disease in the event said person makes application to enter the pool or gains access to the pool. The superintendent of health shall have full power and authority to summons any person so reported for an examination, and if it is determined that the person in question is suffering from a communicable disease, he or she upon conviction shall be guilty of a misdemeanor and given the maximum punishment prescribed in this ordinance.

SEC. 11. All swimming suits leased by the management shall, immediately after each use, be subjected to boiling water for a period of not less than five minutes.

SEC. 12. All swimming pools shall be equipped with guard rails adjacent to the walls of the pool to prevent bathers from leaving the pool except by main point of entrance.

SEC. 13. Any person who shall defile the water of a public swimming pool or bathing beach by spitting or otherwise contaminating the water shall be guilty of a misdemeanor and punished as hereinafter provided.

SEC. 14. It shall be the duty of the owner or manager of a public swimming pool or bathing beach at all times to keep the immediate premises, bathhouses, towels, walks, or any other equipment in connection with the resort in a clean and sanitary manner.

SEC. 15. It shall be the duty of the management of all public swimming pools to provide adequate shower baths for the use of bathers entering the pool, and it shall be the duty of the management to impress upon all persons entering the pool to use the shower prior to entering the water.

SEC. 16. It shall be the duty of the management of all public swimming pools and bathing beaches to keep notices posted on the bathhouse calling attention to the provisions of this ordinance concerning persons entering the pool with communicable disease, spitting or otherwise defiling the water of the pool, leaving the pool by means other than the main entrance, and the use of the urinals.

SEC. 17. The management shall provide suitable and adequate water-closet accommodations for both ladies' and gentlemen's bathhouses, and it shall be the further duty of the management to see that same are used properly.

SEC. 18. The management shall keep the permit for the operation of the pool and bathing beach near the main entrance to the pool together with a certified copy of this ordinance.

SEC. 19. Any person violating any provision of any section of this ordinance upon conviction shall be guilty of a misdemeanor and punished by a fine of not exceeding \$50.

VENEREAL DISEASES¹

CLEVELAND, OHIO

Venereal Diseases—Sale, Gift, or Dispensing of Drugs or Medical or Surgical Devices for Prevention or Treatment of. (Ord. 67507—A, April 20, 1925)

SECTION. 1. That it shall be unlawful for any person, firm, or corporation, except licensed pharmacists or licensed practitioners of medicine or surgery, to sell or give away, or offer to sell or give away any drug or medical or surgical device for the prevention or treatment of venereal diseases; and no such drug or device shall be sold, offered for sale, given away, or otherwise dispensed by any pharmacist, physician, or surgeon, by means of any automatic machine or device.

SEC. 2. This ordinance shall be numbered as section 530—A of the Municipal Code of the city of Cleveland of 1924.

EAST ORANGE, N. J.

Venereal Diseases—Examination of Suspected Persons—Issuance of Certificates Showing Freedom from Infection—Isolation—Periods of Communicability—Treatment—Exposure of Others by Infected Person Prohibited—Prohibited Occupations—Sale of Medicine—Advertisements Concerning Venereal Diseases and Other Sexual Disorders. (Reg. Bd. of H., July 31, 1924)

SECTION 1. That section 23 of the Sanitary Code of the city of East Orange be, and the same hereby is, amended to read as follows:

SEC. 23. PAR. 1. Syphilis, gonorrhea, and chancre are hereby declared to be infectious and communicable venereal diseases and dangerous to the public health.

Whenever the board of health or health officer of the city of East Orange shall receive a report from any practicing physician, nurse, social welfare worker, health inspector, or any authorized officer or attaché of any court of this city, that any person within the jurisdiction of the board or health officer is suffering or is suspected to be suffering from or infected with gonorrhea, syphilis, or chancre in a communicable stage, and such person can not furnish satisfactory evidence that he or she is being treated for the suspected infection by a physician licensed to practice medicine in New Jersey, the board or health officer may cause a medical examination to be made of said person for the purpose of ascertaining whether or not such person is in fact infected with gonorrhea, syphilis, or chancre in a communicable stage, and it shall be the duty of every such person to submit to such examination as aforesaid and to permit such specimens of blood or bodily discharges to be taken for laboratory examination as may be necessary to establish the presence or absence of such disease or infection in a communicable stage.

PAR. 2. All persons recently convicted on charges involving sex offenses or who are known to have been exposed to infection of gonorrhea, syphilis, or chancre shall be included under the class of suspected persons described in paragraph one of this ordinance and may be required to submit to examination at any time, but no certificate of freedom from gonorrhea, syphilis, or chancre, except a health certificate required for a marriage license, shall be issued.

PAR. 3. If a person infected with gonorrhea, syphilis, or chancre in a communicable stage shall fail to report to his (or her) physician for treatment by the physician when directed so to do, said physician shall report such failure on the part of said person to the local board of health or health officer, giving the name and address of such person and the disease with which he (or she) is infected, and such board or officer may thereupon require said person to be examined as provided for in paragraph one of this ordinance.

¹ See also Communicable diseases, p. 44; Midwifery, p. 161.

PAR. 4. Any such person as described in paragraphs 1, 2, or 3 of this ordinance who refuses to submit to the examination provided for in paragraph 1 of this ordinance, or who refuses to supply or permit to be taken the specimens provided for in said paragraph, or who, upon examination, is found to be infected with gonorrhea, syphilis, or chancreoid in a communicable stage and not to be regularly treated by a licensed physician and refuses or neglects to secure such treatment by a private physician or at a clinic provided for such purpose and to remain under treatment until discharged as being no longer in a communicable stage, shall be isolated at home or in a hospital and shall take such precautions to prevent spread of the disease as the health department or health officer may direct.

PAR. 5. Cases of gonorrheal infection are to be regarded as communicable until at least two successive smears, taken not less than 48 hours apart, fail to show gonococci. In the male, smears shall be made of the secretions from both the urethra and the prostate. In the female the smears shall be made of the secretions from the urethra and from the cervix. Cases of syphilis shall be regarded as communicable until all lesions of the skin and of the mucous membranes are fully healed. Cases of chancreoid shall be regarded as infectious until all lesions have fully healed.

PAR. 6. All persons known to be, or suspected of being, sources of infection of gonorrhea, syphilis, or chancreoid and all persons known to have been or suspected of having been exposed to such infection from these sources shall be required to undergo such examination as prescribed in paragraph 1 of this ordinance and if found infected shall undergo such treatment or isolation as provided for in paragraph 4.

PAR. 7. No person infected with gonorrhea, syphilis, or chancreoid in a communicable stage shall conduct himself or herself in such a manner as to expose others to infection. No person shall be permitted to conduct a boarding home for children or to board or to care for children for pay without first being examined as provided for in paragraph 1 of this ordinance. No person infected with gonorrhea, syphilis, or chancreoid in a communicable stage shall engage in the nursing or care of children or of the sick, or in any other occupation of such a nature that his or her infection may be transmitted to others.

PAR. 8. No druggist, pharmacist, or other person in the city of East Orange shall sell, give away, prescribe, or administer to any person any drug, medicine, or preparation thereof intended to be used for the treatment, relief, or cure of gonorrhea, syphilis, or chancreoid except upon an original written prescription of a physician licensed to practice medicine in New Jersey and such prescription shall not be refilled.

PAR. 9. No person shall publish or distribute, or cause to be published or distributed in the city of East Orange any advertisement concerning gonorrhea, syphilis, or chancreoid, or any other sexual function, weakness, or disorder or calling attention to a medicine, article, or preparation that may be used therefor, or to a person or persons [from whom], or an office or place at which information, treatment, or advice relative to such disease, function, weakness, or disorder may be obtained: *Provided*, That this regulation shall not apply to didactic or scientific treatises which do not advertise or call attention to any person or persons from whom, or to any office or place at which information, treatment, or advice concerning such disease, function, weakness, or disorder may be obtained, nor shall it apply to advertisements or notices issued by a hospital or licensed dispensary, or by the board of health or health officer, or by the department of health of the State of New Jersey.

MINNEAPOLIS, MINN.

Venereal Diseases—Reports of Cases—Instructions, Copy of Ordinance, and Circular of Information to be Given Patient—Treatment—Periods of Communicability—Powers and Duties of Commissioner of Health—Examination of Suspected Persons—Quarantine—Placarding—Regulations Authorized—Infection or Exposure of Others by Infected Person Unlawful—Repression of Prostitution—Issuance of Certificates Showing Freedom from Infection—Information to be Confidential—Sale of Medicine. (Ord. December 13, 1926)

SECTION 1. *Venereal diseases dangerous to public health.*—Syphilis, gonorrhea, and chancreoid, hereinafter designated as venereal diseases, are hereby recognized and declared to be contagious, infectious, communicable, and dangerous to the public health.

SEC. 2. Venereal diseases to be reported.—It shall be the duty of every licensed physician, or of every superintendent or director of a hospital or dispensary, and of every other person who makes a diagnosis of or gives treatment for a venereal disease, or is consulted by a person having venereal disease, to report immediately to the commissioner of health of the city of Minneapolis, upon a form to be supplied for the purpose by the said commissioner of health, the name and address, the age, sex, color, marital condition, and occupation of such diseased person; the nature and duration of such disease; its probable origin or source of infection; any previous treatment undertaken, the date of discontinuance of such treatment; together with such other information as may be required by the published rules and regulations of the Minneapolis board of public welfare. It shall be the duty of the person so applying for diagnosis or treatment to furnish this required information; and refusal to do so or the making of any false statement of the name and address of the physician or other person theretofore so consulted shall be deemed a violation of this ordinance. It is provided, however, that, except as hereinafter required, the name and address of such diseased person need not be reported.

SEC. 3. Reporting and recording of venereal diseases.—In reporting to the said commissioner of health the above facts with regard to any case of venereal disease, the said case may be identified by a serial number, in lieu of the name and address of the affected person, and this serial number shall be made a part of the initial record to be kept by any physician, official or any other person diagnosing or treating said case of venereal disease. A suitable record book for this purpose may be prepared and furnished by the said commissioner of health upon request of any physician or other person reporting such cases. It shall be the duty of such physician, official, or other person to include in such initial record the name and address of any person diagnosed or treated by him or her, or reasonably under suspicion, as infected with any venereal disease. This requirement shall specifically apply to all physicians, superintendents, or directors of hospitals, of dispensaries, or charitable or penal institutions and to any and all other persons examining or treating cases of venereal disease.

SEC. 4. Requiring report of cases of venereal disease by name and address.—If any attending physician or other person knows or has good reason to suspect that a person infected with syphilis, gonorrhea, or chancreoid, is so conducting himself or herself as to expose other persons to infection, or is about so to conduct himself or herself, or if such infected person shall discontinue treatment while still able, in the judgment of said attending physician or other person, to transmit infection, said physician or other person shall notify the said commissioner of health of the name and address of the diseased person and the essential facts of the case.

SEC. 5. Instruction of patients by physicians and others.—It shall be the duty of every physician and of every other person who examines or treats a person having syphilis, gonorrhea, or chancreoid, to instruct such person in measures for preventing the spread of such disease, and to inform him of the necessity for treatment until cured, and to give him a copy of this ordinance and of the circular of information provided for this purpose by the said commissioner of health.

SEC. 6. Continuance of treatment.—All persons infected with venereal disease shall continue under treatment or proper observation until no longer able to transmit the infection. In the case of gonorrhea this shall be until all clinical and microscopic evidence is negative.

In the case of syphilis this shall be until all clinical and laboratory evidence is negative and sufficient treatment to reasonably insure a cure has been taken.

In the case of chancreoid this shall be until all ulcerations are completely healed. Microscopic evidence of cure of either of these venereal diseases shall be submitted, at his request, to the said commissioner of health, or under his direction, to the State board of health.

SEC. 7. Duties of parents or guardians responsible for minors affected with venereal disease.—The parent or guardian of a minor affected with venereal disease, who has actual knowledge that such minor is so affected, shall see to it that the affected minor complies with all the provisions of this ordinance. Failure upon the part of the parent or guardian to so comply with this ordinance shall be deemed a misdemeanor.

SEC. 8. Power and duties of commissioner of health.—The commissioner of health of the city of Minneapolis is hereby authorized and directed to use every available means to ascertain the existence of, and immediately to investigate all known cases of venereal disease and to ascertain, if possible, the sources of

their infection. In such investigations the said commissioner of health is hereby vested with full power of inspection, isolation, or quarantine, and disinfection of all infected persons, places, and things. He is hereby directed, in person or by a duly appointed medical officer, to make such examinations of persons reasonably suspected of having venereal disease, as may be necessary to carry out the provisions of this ordinance: *Provided, however,* That such examiner must be a regularly licensed physician. Owing to the prevalence of venereal disease among prostitutes and persons who associate with them all persons arrested and charged with offenses against public morals and decency shall be considered within the class to which the particular provisions of this section of this ordinance apply.

The said commissioner of health is hereby empowered and directed to institute measures for the protection of others from infection by venereally diseased persons.

In establishing the quarantine of cases of venereal disease the commissioner of health shall define the limits of the area in which a person known to be suffering with venereal disease, and in which his or her immediate attendant, shall remain; and no persons, other than attending physicians, shall enter or leave such area without the permission or under requirements of the said commissioner of health.

It shall be the duty of the said commissioner of health to conduct and control the detention, quarantine, or isolation, and treatment, and the subsequent discharge of persons infected with venereal disease and committed to his care by order of the courts, in such detention or industrial homes, or hospitals, as may be provided and equipped for such purpose by authority of the Minneapolis board of public welfare.

Whenever it is necessary for the protection of the public health that persons infected with venereal disease be isolated, the said commissioner of health shall isolate such venereally diseased persons in suitable hospitals or in the aforesaid detention or industrial home or homes and cause a proper course of treatment to be administered to such persons.

Whenever a case of venereal disease is found on premises used for immoral purposes, or upon premises where it can not be properly isolated or controlled, and where the infected person will not consent to removal to a hospital, home, or sanatorium where he or she can be properly isolated and controlled, as may be necessary, during the period of infectiousness, the commissioner of health or his appointed agent may put in a conspicuous place on the entrance to the premises where such venereal disease exists a quarantine notice or placard similar to that provided in the regulation of other communicable diseases.

In lieu of quarantine or isolation, the said commissioner of health may, when he deems it to the best interest of the public, release a venereally diseased person under an agreement, provided by regulation of the board of public welfare, to continue treatment under the direction of the said commissioner of health and to safeguard others from infection, signed by such diseased person.

Any person signing the above agreement shall observe its provisions and any failure so to do shall be a violation of this ordinance. All such agreements shall be filed with the said commissioner of health.

The board of public welfare of the city of Minneapolis is hereby empowered to make such rules and regulations, under this ordinance, as may be necessary to carry out its provisions for the control of venereal disease.

SEC. 9. Spread of venereal diseases unlawful.—It shall be unlawful for any person to infect any other person with any venereal disease, and it shall be unlawful for any person knowingly to perform or commit any act which exposes any other person to infection with any venereal disease.

SEC. 10. Control of prostitution and certification of freedom from disease.—Prostitution is hereby declared to be a prolific source of venereal disease and its repression to be a public health measure. The commissioner of health and his appointed representatives are hereby directed to cooperate with the officers of the law and the courts in the enforcement of this ordinance and the laws of the State governing the control of venereal disease.

The commissioner of health, all physicians and other persons are hereby prohibited from issuing certificates of freedom from venereal disease, providing this provision shall not prevent the issuance of necessary statements of freedom from communicable diseases, written in such form or given under such safeguards as will prevent their use in solicitation for sexual intercourse. Such statements shall not be used or exhibited for solicitation for immoral purposes.

SEC. 11. *Confidential nature of reports.*—All reports, records, and other information concerning persons affected with venereal disease shall be regarded as confidential and shall not be open to the public, except in so far as publicity shall necessarily attend the performance of the duties imposed by this ordinance upon the commissioner of health and addressed to the protection of the public health.

SEC. 12. *Sale or distribution of remedies for venereal disease.*—It shall be unlawful for any druggist, pharmacist, or other person, firm, or corporation, other than a physician regularly employed in the treatment of a given case of venereal disease, to sell or give away any medicine, drug, remedy, or preparation for the prevention, relief, cure, or treatment of any form of venereal disease, except upon the original written prescription of a regularly licensed physician or practitioner, and no such prescription shall be refilled excepting by written order of such physician or practitioner; and no such medicine, drug, remedy or preparation shall be sold, offered for sale, given away or otherwise dispensed by means of any automatic machine or device.

SEC. 13. *Orders of city commissioner of health.*—It shall be unlawful for any person to neglect or refuse to obey any regulation of the Minneapolis board of public welfare or any order of the commissioner of health of the city of Minneapolis, as authorized by this ordinance, or to interfere with or obstruct said commissioner in the performance of his duties herein required.

SEC. 14. *Violations.*—Any person violating any of the provisions of this ordinance shall, upon conviction thereof before the municipal court of the city of Minneapolis, be punished by a fine not exceeding \$100, or by imprisonment for a period not exceeding 90 days.

WATER AND ICE

ALBANY, N. Y.

Bottled Water—Sale—Sanitary Requirements—Health Certificate Required of Employees Handling. (Ord. Effective October 1, 1925)

SECTION 1. That no person, firm, or corporation shall sell, offer for sale, or deliver, any water for domestic purposes, in the city of Albany, without first having obtained a permit therefor from the bureau of health.

SEC. 2. Applications for permits or for the renewal of permits under this ordinance shall be submitted upon blank forms furnished for the purpose by the bureau of health and all questions and information asked or requested shall be fully and satisfactorily answered by the applicant.

SEC. 3. A sanitary survey of the source or sources of supply from which it is proposed to take such water shall be made by the health officer or his representative before such water is offered for sale in the city of Albany.

SEC. 4. No water shall be sold, or offered for sale, or delivered for drinking or other domestic purposes, in the city of Albany, which, in the opinion of the health officer—

(a) Has been derived from a source that is subject to possible pollution or contamination.

(b) Has not been derived and otherwise developed and protected at its source as to exclude all possible pollution or contamination from underground or surface sources or from accidental, incidental, and willful causes.

(c) Has been conveyed, pumped, or stored, prior to bottling, in pipes, tanks, or other vessels and equipment which are not of sanitary design and material and free from possible pollution or contamination.

(d) Has been bottled in a place or by methods, installation, and equipment, and under conditions and operation, which are not clean and sanitary and free from pollution or contamination.

(e) Has been put up in bottles or other containers which are not of suitable material and design, or which have not been properly cleaned and sterilized before use, in a manner and under conditions that will insure freedom from possible pollution or contamination.

(f) Indicates by sanitary survey or by laboratory analysis or examination that it is not of satisfactory sanitary or physical quality or that it has not been properly developed at its source or has not been bottled, transported, and delivered by means and under conditions as to insure of its being clean and sanitary and free from actual or possible pollution or contamination.

SEC. 5. All vehicles from which water is sold and all crates, or other containers, in which bottles are packed or delivered shall be plainly marked with the name of the owner and the name of the spring from which such water is taken.

SEC. 6. No water shall be sold or offered for sale, or delivered for domestic purposes, in the city of Albany, except in bottles or other containers, which in the opinion of the health officer are of suitable material, shape, size, and color and which are equipped with suitable stoppers, suitably protected by covers to exclude dust and other source of pollution or contamination.

SEC. 7. No water shall be sold, or offered for sale, or delivered for domestic purposes, in the city of Albany, unless the room or rooms in which the water is bottled and prepared for delivery shall be in a separate building, or in a separate part of a building, used for no other purpose, and unless the location, construction, arrangement, and equipment of the same shall be approved by the health officer.

SEC. 8. All persons engaged in the care and handling of bottled waters sold or offered for sale under this ordinance must present a certificate from a regularly licensed physician showing that they are free from all contagious or infectious

disease, and such persons while engaged in such work must keep themselves and utensils and appliances used in the work in a clean and sanitary condition.

SEC. 9. No permit shall be issued by the bureau of health in pursuance of this ordinance until the bureau of health has first inspected and approved the premises, the source of supply, the methods and means of bottling, transportation, and delivery, and the sanitary and physical quality of the water, and until all the conditions of this ordinance have been complied with.

SEC. 10. Any person, firm, or corporation to whom a permit has been issued under this ordinance, and any officer, agent, or employee thereof shall furnish to the bureau of health or to the officers or agents thereof, upon request, at any time, for purposes of testing and analysis, samples of water from the source of supply, or from any wagon or container.

SEC. 11. When water is delivered to families in which there exists any contagious or infectious disease, the person making such delivery shall not enter the house or building in which such contagious or infectious disease exists. In making such deliveries the water to be delivered shall be poured into vessels furnished by the occupant of the house, or the containers may be left at the house provided they are kept in such house until quarantine has been raised and the containers have been sterilized under the direction of the bureau of health.

SEC. 12. All permits issued in pursuance of this ordinance shall be granted for a period of one year, or until June 1 next succeeding the year in which the permit is issued, at which time the permit may be renewed for a period of one year. The bureau of health may revoke any permit granted in pursuance of this ordinance for failure to comply with the terms and conditions herein set forth.

SEC. 13. Every person, firm, or corporation engaged in supplying drinking water, under this ordinance, in the city of Albany, shall pay to the city a license fee of \$5 per annum.

SEC. 14. For practical purposes in the enforcement of this ordinance the health officer may adopt and enforce rules and regulations, not inconsistent with the provisions of the ordinance, covering in more detail requirements with reference to the development and protection of the source of supply, the means and methods used in handling, bottling, and distribution of the water, and concerning any other question or matter which has a bearing upon the sanitary and physical condition and quality of the water from its source to final delivery.

SEC. 15. This ordinance shall not apply to charged waters nor to beverages other than water which are sold under the provisions of State or Federal food laws.

SEC. 16. Notwithstanding the foregoing provisions, no license shall be required of any person, firm, or corporation who sells any water, purchased from any person, firm, or corporation licensed under the provisions of this ordinance, in the original containers in which the water is purchased from such licensed dealers.

SEC. 17. Any person violating any of the provisions of this ordinance or any rule or regulation of the health officer adopted under section 14 of this ordinance shall be deemed guilty of a misdemeanor and upon conviction thereof shall be punished by a fine not to exceed \$150 or by imprisonment not to exceed 30 days, or by both such fine and imprisonment.

BLOOMFIELD, N. J.

Ice—Sale and Use. (Reg. Bd. of H., March, 10, 1924)

SEC. 159. No person shall cut, bring, sell, or use any ice within the limits of the town of Bloomfield, if notified that in the judgment of the board of health the same is unfit for use.

SEC. 160. No person shall cut ice for the purpose of selling or using it in this town, from any pond, creek, or river within the corporate limits thereof, without first obtaining from the board of health a permit for such cutting and no person shall sell or deliver any ice in the town of Bloomfield without first obtaining a permit therefor from the board.

SEC. 161. No such permit as set forth in the next preceding section shall be issued by the board of health until there shall have been paid to the board for issuing thereof and for the proper supervision of the cutting and selling of ice the sum of \$5 and the sum of \$5 for each and every vehicle or conveyance from which ice shall be sold or delivered.

SEC. 162. Each permit issued as set forth in the preceding section shall continue for a term of one year beginning on the 1st day of May in each year:

Provided, That the permit so issued may be revoked, if in the judgment of the board of health the use of any ice so cut, sold, or delivered or to be cut, sold, or delivered thereunder is or might be detrimental to the public health.

SEC. 163. Upon the granting of any such permit for the sale or delivery of ice as in this ordinance provided, it shall be the duty of the board of health to furnish to each licensee two signs for each vehicle or conveyance as licensed, which signs shall have written or printed thereon the words "Ice license," the number of the license, the words "Board of health" or "B. of H." and the date of the license and the said signs so furnished shall by the said licensee be conspicuously placed on each side of the vehicle or conveyance.

CLEVELAND, OHIO

Public Water Supplies—Prevention of Pollution. (Ord. 60707-A, May 22, 1923)

SECTION. 1. That section 717 of the Municipal Code be supplemented by the addition of a subsection to read as follows:

No person, firm, or corporation, owning or having the possession or management of any premises shall cause, suffer, or permit to be thrown, deposited, poured, emptied, or discharged from said premises into any harbor, river, creek, brook, spring, branch of running water, ditch, drain, or other body of water used as a source of public water supply by the city of Cleveland, or which runs into or is contiguous or tributary to a body of water used as a source of public water supply by the city of Cleveland, any derivative or compound of coal tar or other refuse or waste matter which corrupts or renders unwholesome or impure said public water supply or which prevents or hinders the purification or treatment of said public water supply in order to make same fit for domestic consumption or which impairs or destroys the potability of said water when so purified or treated.

SEC. 2. That this subsection be numbered as section 717-a, of the Municipal Code.

DETROIT, MICH.

Water Supplies—Cross Connections. (Reg. Bd. of H., 1925)

SECTION 1. Every city service connection to establishments using river water for any purpose whatsoever, or which employ river intakes for emergency uses, shall be protected by a special arrangement of valves and checks as hereinafter provided.

SEC. 2. No physical connection shall be maintained between lines carrying city water and pipes, pumps, or tanks supplied from any other source. Where dual supplies are necessary or desired, lines carrying city water must be protected against back flow of polluted water by an atmospheric gap of not less than 6 inches. This may be accomplished through an elevated tank with or without booster pump, or an open cistern with booster pump. In every case the inlet to the tank, from the line carrying city water, shall discharge at least 6 inches above the maximum possible high-water level of the tank or cistern as the case may be.

SEC. 3. All drinking fountains, lavatories, slop sinks, baths, wash trays or racks, or other fixtures or devices where persons come in close contact with water shall be supplied with water taken from the city mains. Piping and valves shall be so arranged that the supply to such fixtures may be shut off in order to facilitate the quick checking up of the water supply to any one fixture.

SEC. 4. The valve combination for protecting all service connections shall consist of two bronze-mounted gate valves and two bronze-mounted check valves so arranged that checks may be tested for leakage by the use of pressure gauges. The gate valves shall be bronze mounted and provided with bronze stem with indicator. The check valves shall be of the swing check type having seats at an angle with the vertical of not less than 20°. All wearing parts shall be of bronze and so designed as to be readily replaceable or capable of being refinished. These shall include the seat rings, disk rings, stem nuts, hinge pin, and hinge-pin bushings. All drain valves and test valves shall be of bronze, not less than one-half inch in size, and of such pattern as will stand repeated opening and closing without excessive wear or tendency to leakage. All piping between mains and drain and test valves shall be of brass.

SEC. 5. The combination of valves as hereinbefore specified shall be installed immediately following the meter in direction of flow and no connections shall be made with the service line between the meter and the last gate valve of the series.

The valves shall be located in a well-drained room or pit of sufficient size to permit a person to stand erect and to have convenient access to the valves for inspection, testing, and repair purposes.

SEC. 6. In every instance where dual supplies exist, all exposed piping carrying river or polluted water and that carrying city water shall be uniformly painted with distinguishing bright colors and so maintained that each pipe may be readily traced in its entirety by such color. Detailed plans of all underground or unexposed piping, both city and river, shall be furnished to the department of health, and corrections made thereto as soon as alterations are made.

UNION CITY, N. J.

Ice—Storage, Sale, and Distribution—Licensing of Dealers. (Reg. Bd. of H., December 23, 1925)

SECTION 1. No person or persons, company, copartnership, or corporation shall engage in the business of storing, selling, distributing, or dealing in ice, either at wholesale or retail, within the limits of the city of Union City without first obtaining license therefor as hereinafter provided.

SEC. 2. Any person or persons, copartnership, or corporation now or hereafter engaging in the business of storing, selling, distributing, or dealing in ice, at retail, for domestic use, or for use in any place where such ice may come in direct contact with any articles of food or drink, shall first procure a license for each depot, store, or other place in which such ice shall be stored or kept, sold, or distributed, and for each wagon or vehicle, from which such ice is delivered distributed, sold, or offered for sale. For each store, depot, or other place used for the storage, keeping, sale, or distribution of ice, a metal license plate shall be issued by the board of health of the city of Union City, which shall be prominently displayed in the licensed place. For each wagon or other vehicle employed in the sale, delivery, or distribution of ice, one license plate shall be issued by said board, which shall be affixed to and prominently displayed on right side of such wagon or vehicle.

SEC. 3. Every wholesale dealer in ice shall keep the premises where ice is stored, and from which delivery is made to retailers, in a sanitary condition, and shall provide a conveniently situated and accessible supply of pure and wholesome water with which the interior of wagons or other vehicles receiving ice from such dealer may be and shall be washed free from sawdust, dirt or other contamination.

SEC. 4. All ice to be sold or distributed in the city of Union City for domestic use, or for use in any place where any article of food or drink may come directly in contact therewith, must be pure and wholesome, obtained from an uncontaminated source, i. e., lake, river, or stream or manufactured from pure, wholesome, and uncontaminated water, and which on chemical and bacteriological examination can be shown to be free from nitrates or pathogenic bacteria.

SEC. 5. All wagons and other vehicles used for the distribution, sale, or delivery of ice for domestic use, shall be thoroughly cleansed on each day that the ice shall be placed therein, and the ice to be placed therein shall likewise be cleansed of all dirt and foreign matter before being placed in and upon such wagon or other vehicle and no such wagon or other vehicle shall at any time be used for any purpose likely to render such wagon or other vehicle unsanitary, and all wagons or other vehicles used for the distribution, sale or delivery of ice for domestic use shall not, at the same time that ice be placed or contained therein, be used for the purpose of delivery of any article, unless such article shall be kept entirely separate and free from contact with such ice; nor shall such wagon or other vehicle, while ice be contained therein, be used for the purpose of carrying or delivery of any article that might contaminate such ice by rendering the same unsanitary.

SEC. 6. All places where ice is kept or stored for sale for domestic use (other than wagons or other vehicles mentioned in the preceding section) must be provided with a suitable chest or box for storing such ice, which chest or box shall conform in all respects to the requirements of the plumbing code of the board of health, and all ordinances, rules or regulations of said board, now or hereafter in effect relating thereto, and all ice kept or stored for the purpose of sale must be at all times kept or stored in such ice boxes or chests.

SEC. 7. All ice for domestic use, when in wagons or other vehicles used for the sale or delivery thereof, shall, unless such wagons or vehicles are inclosed, be kept covered with sail cloth, canvass, or similar cotton material, which shall be at all times kept in a cleanly condition, and no material, other than such as herein mentioned, shall be used for covering such ice.

SEC. 8. In the delivery of ice to retailers for domestic use, it shall not, at any time, be deposited in the street or on the sidewalk, unless a piece of canvass or sail cloth has first been placed on such street or sidewalk where such ice is to be deposited, and no ice intended for domestic use, or for use in any place where such ice may come in direct contact with any article of food or drink, shall be allowed to stand on any street or sidewalk for a longer period of time than is sufficient to allow for its convenient transfer to a proper receptacle in the place where it is to be stored or sold.

SEC. 9. Each applicant for a license under the provisions of this ordinance shall pay to the board of health a license fee of \$5 for each depot, store, or other place where ice is to be stored or kept for the purpose of sale, and for each wagon or other vehicle used for the sale or distribution of ice. Each license shall expire on the 31st day of December unless sooner forfeited or revoked.

SEC. 10. Any license granted under this ordinance may be revoked by the board of health for the violation of any of the provisions of the ordinance or for any other good cause shown, and after an opportunity has been granted to the licensee to be heard by such board. During the pendency of such procedure the board of health may, at their discretion, order the said license to be suspended and all transactions thereunder shall be discontinued under the penalties herein provided for the sale of ice without a license.

SEC. 11. Any person or persons, company, partnership, or corporation violating any provision of this ordinance shall, upon conviction thereof, pay a penalty of not less than \$2 and not more than \$100, the amount of such penalty between the maximum and minimum, thus to be paid, to be fixed in the discretion of the court or magistrate before whom the complaint may be made, and any person thus adjudged guilty and sentenced to pay a penalty, who may refuse or neglect to pay the amount of such judgment or penalty and all costs and charges incident thereto, may be by the court or magistrate before whom the complaint has heard committed to the county jail for any period not exceeding 90 days and the court or magistrate, before whom the complaint may be thus made, in case the defendant shall have been twice convicted, within the space of six months, of the violation of this ordinance, on due proof of such fact being made, may, in addition to the payment of the appropriate penalty, cause said defendant to be imprisoned in the county jail or county workhouse, with or without hard labor, for any number of days, not exceeding one for each dollar of penalty imposed.

WINTHROP, MASS.

Ice—Sale Prohibited When. (Reg. Bd. of H., October 1, 1924)

RULE 20. No person, by himself or by his agent or servant, or as the agent or servant of any other person, firm, or corporation, shall in the town of Winthrop sell, exchange, or deliver, or have in his custody or possession with intent to sell, exchange, or deliver any ice from polluted sources, or ice which upon chemical or bacteriological examination shows evidence of sewage contamination either by the presence of sewage bacteria or of excessive "ammonia" (free or albuminoid) or of "nitrates" or which is visibly polluted or soiled by dirt, or ice in or upon which there is any visible foreign matter, or ice which has been handled with dirty hands or implements.

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TREASURY DEPARTMENT
UNITED STATES PUBLIC HEALTH SERVICE
HUGH S. CUMMING, SURGEON GENERAL

STUDIES ON OXIDATION-REDUCTION

XIII. PREPARATION OF INDOPHENOLS WHICH MAY BE USED
AS OXIDATION-REDUCTION INDICATORS

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STUDIES ON OXIDATION-REDUCTION

THE PREPARATION OF SUBSTITUTED ANILINE DYES
AS OXIDATION-REDUCTION INDICATORS

BY J. H. HILL

RESEARCH CHEMIST

U. S. BUREAU OF CHEMISTRY

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STUDIES ON OXIDATION-REDUCTION¹

XIII. PREPARATION OF INDOPHENOLS WHICH MAY BE USED AS OXIDATION-REDUCTION INDICATORS

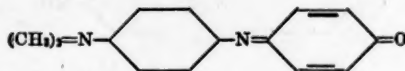
I. Introduction

In previous papers of this series (see 3, 5, 6, and 7), accounts were given of electrode potential measurements of 27 indophenols. In a subsequent paper, data on four more indophenols will be given. The synthesis of these compounds has not been adequately described and it seems advisable to publish as a unit the descriptions of our methods of preparation, although in the case of many of the compounds these represent rather crude preliminary attempts. These preliminary experiments, although giving poor yields, often supplied a sufficient quantity of the compound desired for our experimental work, and therefore further study for the purpose of improving the method was neglected in the press of other work.

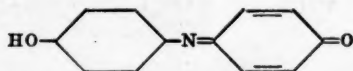
Since the nomenclature of indophenols is in an unsatisfactory state, we shall preface our remarks by a discussion of this subject.

II. Nomenclature

Compounds of the type under discussion have never been adequately correlated and indexed in the literature. The records are scattered under various names. The index to Beilstein (1906) contains but one name ("indothymol"), which is obviously related to "indophenol"; yet in this handbook and in other parts of the literature the compounds in which we are interested are classified as "phenazones" and "quinonephenolimides." Frequently a common name is given to two compounds. For instance, phenol blue is either

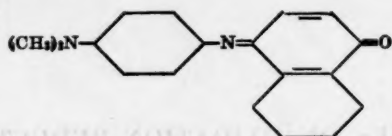


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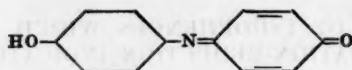


¹ EDITORIAL NOTE.—Prof. W. M. Clark, one of the authors of this article, resigned from the Public Health Service Aug. 31, 1927; Mr. W. L. Hall, also a coauthor, resigned Dec. 12, 1927. The work here reported was carried on at various times during the past five years.

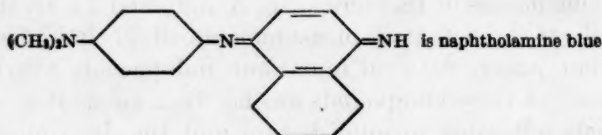
and indophenol is either



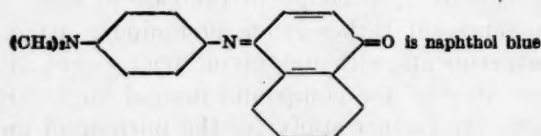
or



Many of the compounds are found under ambiguous names, for example

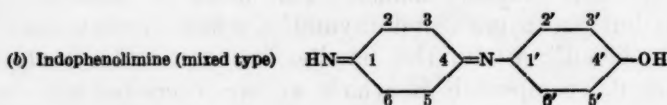
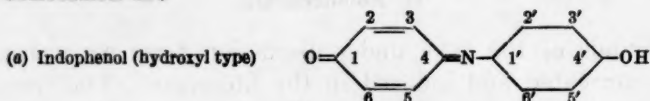


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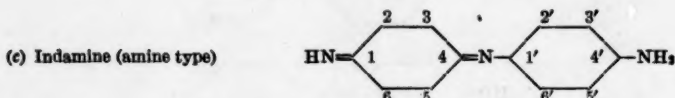
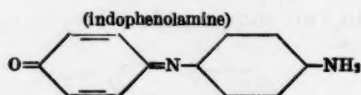


The leuco compounds are usually more clearly indexed, but even then there occurs some confusion.

The simplest members of three series of compounds with which we are concerned are



and



Compounds of the first two types have been called indophenols and those of the third indamines. Attention may be called to the fact that many compounds of type (b) conduct themselves more like indamines than like indophenols, especially as regards their color changes with change of pH. Therefore, it would be a convenience

if they could be called indamines; but, since this would add confusion to an already confused subject, we shall call them indophenol imines. This nomenclature will preserve fairly well understood names for genera, i. e., indophenols, indophenol imines, and indamines.

In devising a nomenclature for individuals, the First Decennial Index of Chemical Abstracts (1907-1916) builds a name upon "benzenone" which is represented by the structure



Thus (a) (above), according to Chemical Abstracts, is "4-(p-hydroxyphenylimino)-p-benzenone." This is too cumbersome for convenience. It is easily simplified as follows:²

(1) The stem "ind" occurring in the generic names is applied to the bridging N, specifically as it occurs in this group of compounds.

(2) The term "benzenone" is preserved.

(3) As used, the term "benzenone" (or naphthanone, etc.) implies that the two hydrogens of benzenone are substituted, and so the use of "phenol" (or naphthol, etc.) implies that a hydrogen of phenol is substituted by =N- to form an indophenol.

(4) The substitution of =N- in the para position of a phenol (etc.) or in benzenone (etc.) is understood, and ortho substitution only is specifically indicated.

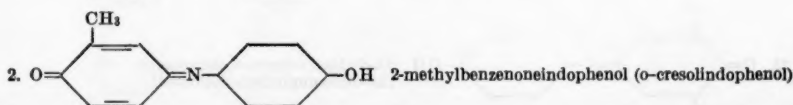
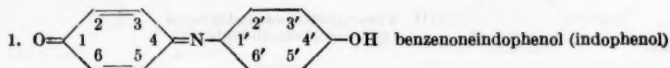
(5) It is understood that a single name can not describe the tautomers. Hence, even the more probable form may be neglected if the choice of its tautomer simplifies the name.

(6) The numbering of Chemical Abstracts is adopted in principle and the principle extended as in the instances given above, as in compound No. 1, below.

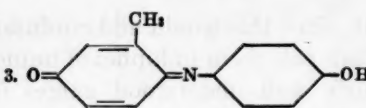
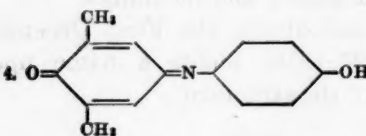
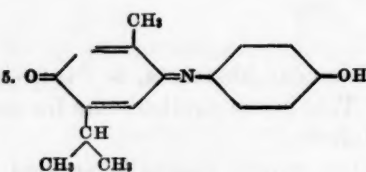
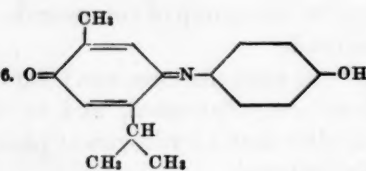
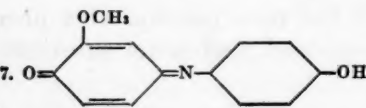
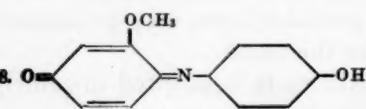
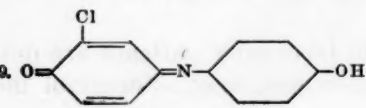
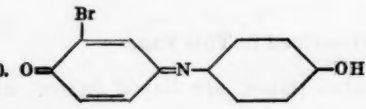
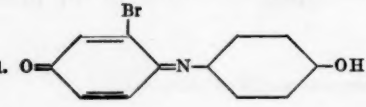
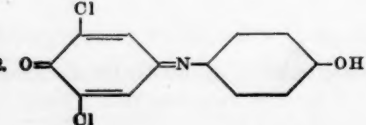
(7) Common names convenient to laboratory parlance are developed from possible phenolic intermediates, e. g., "m-cresol indophenol" for No. 3 (below).

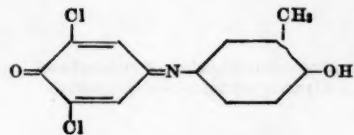
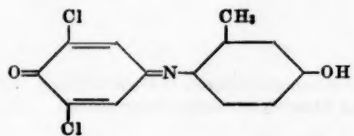
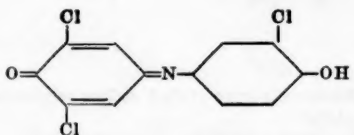
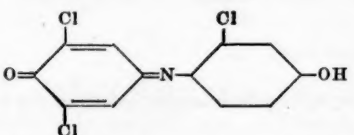
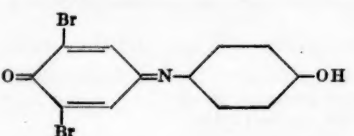
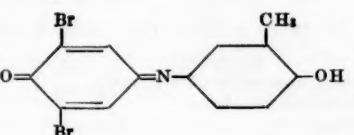
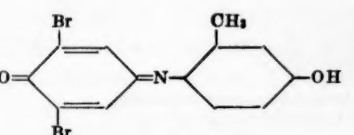
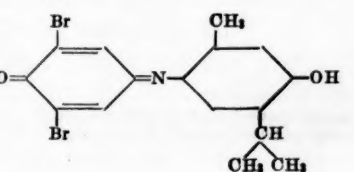
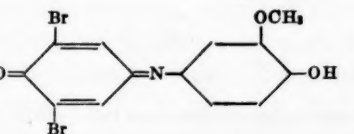
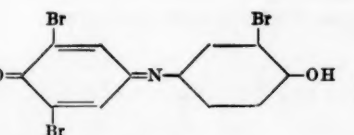
III. List of 34 Compounds Described in This Paper

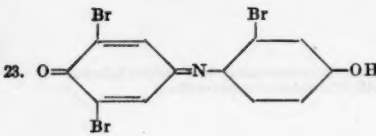
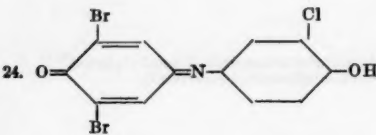
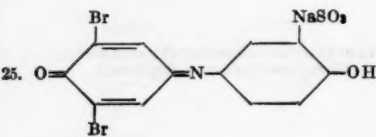
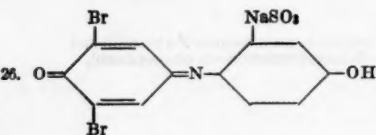
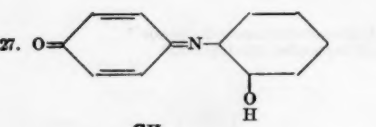
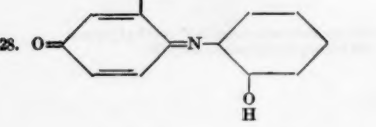
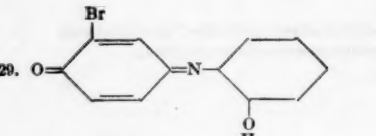
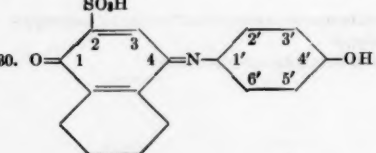
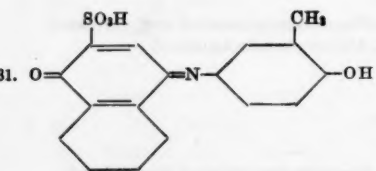
The 34 compounds described in this paper are listed below with the scientific and common names developed according to the principles enumerated above.

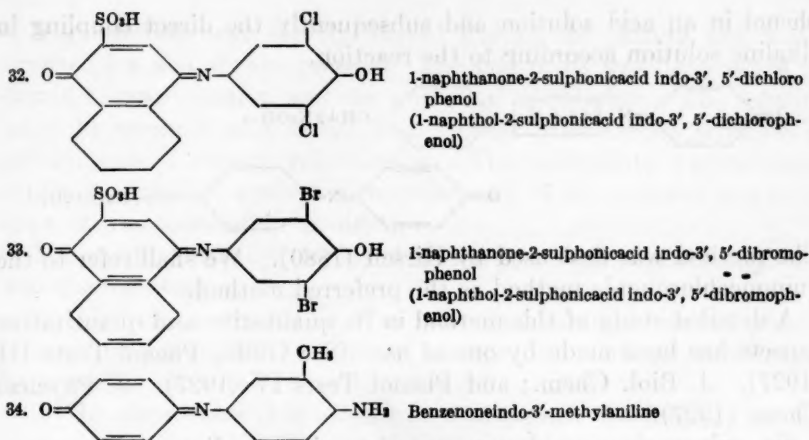


² This system of naming and numbering compounds has been employed in previous publications. See Gibbs, Phenol Tests III, J. Biol. Chem. (1927) LXXII, 652, and IV, J. Phys. Chem. XXXI, 1053.

3.  3-methylbenzenoneindophenol
(m-cresolindophenol)
4.  2,6-dimethylbenzenoneindophenol
5.  3-methyl-6-isopropylbenzenoneindophenol
(thymolindophenol)
6.  2-methyl-5-isopropylbenzenoneindophenol
(carvacrolindophenol)
7.  2-methoxybenzenoneindophenol
(guaiacolindophenol)
8.  3-methoxybenzenoneindophenol
(methylresorcinolindophenol)
9.  2-chlorobenzenoneindophenol
(o-chlorophenolindophenol)
10.  2-bromobenzenoneindophenol
(o-bromophenolindophenol)
11.  3-bromobenzenoneindophenol
(m-bromophenolindophenol)
12.  2,6-dichlorobenzenoneindophenol
(2,6-dichlorophenolindophenol)

13.  2,6-dichlorobenzene-1,4-dione-3'-methylphenol
(2,6-dichlorophenolindo-o-cresol)
14.  2,6-dichlorobenzene-1,4-dione-2'-methylphenol
(2,6-dichlorophenolindo-m-cresol)
15.  2,6-dichlorobenzene-1,4-dione-3'-chlorophenol
(2,6-dichlorophenolindo-o-chlorophenol)
16.  2,6-dichlorobenzene-1,4-dione-2'-chlorophenol
(2,6-dichlorophenolindo-m-chlorophenol)
17.  2,6-dibromobenzene-1,4-dione-phenol
(2,6-dibromophenolindophenol)
18.  2,6-dibromobenzene-1,4-dione-3'-methylphenol
(2,6-dibromophenolindo-o-cresol)
19.  2,6-dibromobenzene-1,4-dione-2'-methylphenol
(2,6-dibromophenolindo-m-cresol)
20.  2,6-dibromobenzene-1,4-dione-2'-methyl-5'-isopropylphenol
(2,6-dibromophenolindothymol)
21.  2,6-dibromobenzene-1,4-dione-3'-methoxyphenol
(2,6-dibromophenolindoguaiacol)
22.  2,6-dibromobenzene-1,4-dione-3'-bromophenol
(2,6-dibromophenolindo-o-bromophenol)

23.  2,6-dibromobenzene-1,2-dione-2'-bromophenol
(2,6-dibromophenolindo-m-bromophenol)
24.  2,6-dibromobenzene-1,2-dione-2'-chlorophenol
(2,6-dibromophenolindo-o-chlorophenol)
25.  2,6-dibromobenzene-1,2-dione-2'-sodium sulphonate-phenol
(2,6-dibromophenolindo-o-phenolsulphonate)
26.  2,6-dibromobenzene-1,2-dione-2'-sodium sulphonate-phenol
(2,6-dibromophenolindo-m-phenolsulphonate)
27.  Benzenone-1,2-dione-2'-phenol
(Phenolindo-o-phenol)
28.  3-methylbenzene-1,2-dione-2'-phenol
(m-cresolindo-o-phenol)
29.  2-bromobenzene-1,2-dione-2'-phenol
(2-bromophenolindo-o-phenol)
30.  1-naphthol-2-sulphonic acid indophenol
(1-naphthol-2-sulphonic acid indophenol)
31.  1-naphthol-2-sulphonic acid indo-3'-methylphenol
(1 naphthol-2-sulphonic acid indo-o-cresol)



III. Experimental Methods

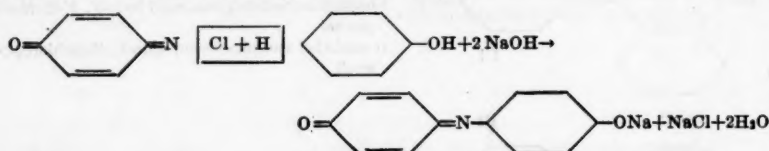
(a) *Methods of preparation of quinonechloroimides and indophenols.*—Indophenols, indamines, and related compounds have been formed by a wide variety of methods. In this work we employed two methods. The first consists in the oxidation of a mixture of a phenol and a paraaminophenol by hypochlorite solution at low temperature. In our first trial of this method we obtained what at first appeared to be a good sample of indophenol; but it soon became apparent that it was contaminated with a product of the oxidation of the paraaminophenol and that uniformity in the repetition of the procedure was not attained in the case of either indophenol or other products.

With relation to the low oxidizing intensity required for the oxidative condensation of phenol and p-aminophenol, hypochlorite is an extremely intense reagent. It is therefore almost certain to produce some undesired products. Variations of dilutions, of temperature, of order of mixing, of the proportions of reactants, and of pH by means of buffering solutions all failed in preliminary trials to afford a definite solution of the problem.

It was clearly evident that adjustment of hypochlorite to about pH 11.5 by the flash indicator method and the use of buffers in the reaction mixture was advantageous. But before the systematic study of the problem was begun it was found that the quinonechloroimide method was so much more satisfactory as a laboratory procedure that nearly all our preparations were finally made by means of these intermediate compounds. Tentatively we regard the hypochlorite method as faulty in principle, for the reason stated above; although as a commercial method, and for the preparation of certain compounds, it may be eminently satisfactory.

The quinonechloroimide method consists in the separate formation of a quinonechloroimide by the action of hypochlorite on an amino-


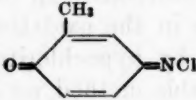
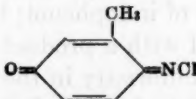
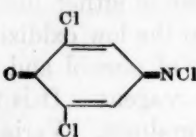
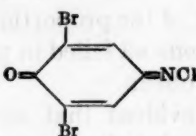
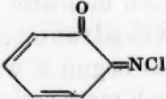
phenol in an acid solution and subsequently the direct coupling in alkaline solution according to the reaction.



The method was first used by Hirsch (1880). We shall refer to the quinonechloroimide method as the preferred method.

A detailed study of this method in its qualitative and quantitative aspects has been made by one of us. (See Gibbs, Phenol Tests III (1927). J. Biol. Chem.; and Phenol Tests IV (1927). J. Physical Chem. (1927).)

Six quinonechloroimides were made as intermediates. They were

- | | | |
|------------------------------------|-------------------------------------------------------------------------------------|---------------|
| (1) Quinonechloroimide |  | M. W. = 141.5 |
| (2) 2-Methylquinonechloroimide |  | M. W. = 155.5 |
| (3) 3-Methylquinonechloroimide |  | M. W. = 155.5 |
| (4) 2,6-Dichloroquinonechloroimide |  | M. W. = 210.4 |
| (5) 2,6-Dibromoquinonechloroimide |  | M. W. = 299.3 |
| (6) o-Quinonechloroimide |  | M. W. = 141.5 |

These were made by slowly pouring a cold, strongly acid (HCl) solution of the aminophenol into a solution of sodium hypochlorite which was prepared by the directions of Raschig (1907).²

² Six hundred and thirty grams of sodium hydroxide are dissolved in a little water, cooled, and poured onto sufficient crushed ice so that the total weight is 10 kg. Chlorine gas is now run into the mixture in a rapid stream until the weight increases 730 g. At this time much crushed ice should still be present. The solution of sodium hypochlorite is now ready for use. This quantity is sufficient for about 2.5 moles of the aminophenol. For some purposes we found it advantageous to use 900 g. chlorine.

The solution was rapidly stirred during the mixing and much crushed ice was always present. The end-point was determined by complete precipitation and the evolution of chlorine. The solution must be strongly acid at the end. These chloroimides separate as precipitates of canary yellow color. The precipitate was collected on Büchner filters, washed with water, and, if the material was to be kept, it was thoroughly air-dried.

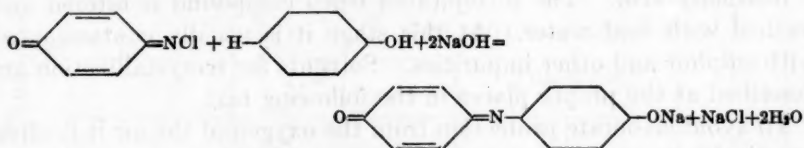
The method usually employed in the synthesis of an indophenol was the following:

(1) Equimolar quantities of a quinonechloroimide and a phenol with which it was desired to couple, were put into a beaker, surrounded by a cooling mixture of ice and water.

(2) In some cases it is satisfactory to permit the solution of the quinonechloroimide in the phenol, in the case of liquid phenols, when a reaction does not thereby proceed prematurely; but usually it is preferable to add water and a few pieces of ice.

(3) The solution is mechanically stirred until the temperature reaches 0°.

(4) A 3-normal solution of sodium hydroxide is now slowly dropped into the agitated mixture while the temperature is maintained near 0°. (Some indophenols can be made satisfactorily at higher temperatures than can others.) The theoretical quantity of sodium hydroxide (2 mols) illustrated by the reaction



and 10 per cent additional are added. The time required should be at least one-half hour.

(5) Under these conditions some indophenols separate almost completely as the sodium salts. If separation does not take place well, the solution is filtered and solid sodium chloride is added to almost saturation. On standing at 0°, or below, the sodium salt often separates almost completely.

In either case the sodium salt of the indophenol should be reprecipitated after solution in water and resalted.

In the majority of cases this procedure gave compounds which, judged by their conduct in electrode measurements, were fairly free from reducible impurities. The chief adulterant is, of course, sodium chloride, which contributes to the difficulties of interpreting analyses. If the indophenol is freed from such salts by methods to be described, there is usually some danger of decomposition which may well be imagined to escape certain assay by ultimate analyses. Indeed,

there is good reason to prefer the sodium salts as purified by resalting, although in many of our earlier preparations we made solutions of the sodium salt in alcohol and reprecipitated the salt with ether.

The sodium salts of the indophenols in aqueous solution are unstable. This is evident, after the solutions have stood, by partial loss of color, pellicle formation, and precipitates. W. C. Holmes, of the Color Laboratory, has also shown by spectrophotometric measurements, that a change can be found long before it becomes evident in the gross appearance of the solution. Acid solutions are much more unstable.

On the other hand some of the air-dry sodium salts have been kept three years without any apparent alteration. For these reasons we regard it best to work with the sodium salts and it is best to purify the original preparations by immediately resalting with sodium chloride and to bring the product to an air-dry state.

(b) *Methods of preparation of leucoindophenols.*—The sodium salt of the oxidant is dissolved in water to give a saturated solution at 30°. To the filtered solution is added, drop by drop with stirring, a 20 per cent solution of potassium sulphide until the blue color disappears. Very often the solution becomes dirty brown or green if impurities are present, otherwise the solution will be fairly colorless.

The solution is chilled and acetic acid is added until the solution is distinctly acid. The precipitated leuco compound is filtered and washed with cold water. At this stage it is usually contaminated with sulphur and other impurities. Solvents for recrystallization are described at the proper places in the following text.

To avoid elaborate protection from the oxygen of the air it is often practicable to introduce a little hydrogen sulphide into the solutions used for recrystallization.

(c) *Melting points (figs. 1 and 2).*—While there is no special difficulty in determining the melting points of the leuco compounds there seem to be some serious problems to be solved before melting points of the free unreduced indophenols can be judged. The case of the simplest indophenol is typical. An apparently homogenous and beautifully appearing sample when heated in mass at a rate suitable for the proper determination of a melting point decomposed with an evolution of heat. Similar results have been obtained with similar compounds, yet Max Phillips has succeeded in duplicating the melting point of phenol-blue (which is found in the literature) provided the heating is rapid in a capillary. Since such compounds exhibit their instabilities in melting-point experiments the "melting point" may have little or no significance. The reduced compounds do not exhibit this instability.

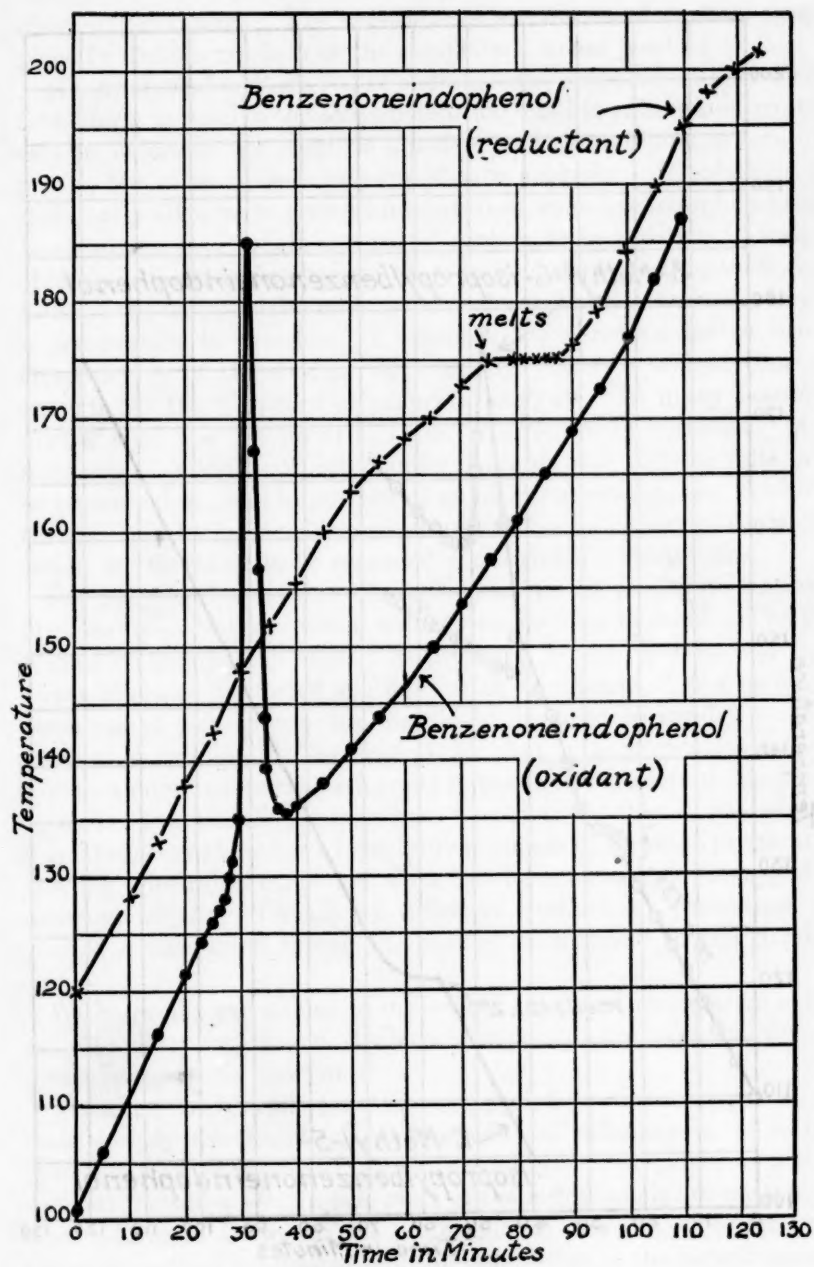


FIG. 1

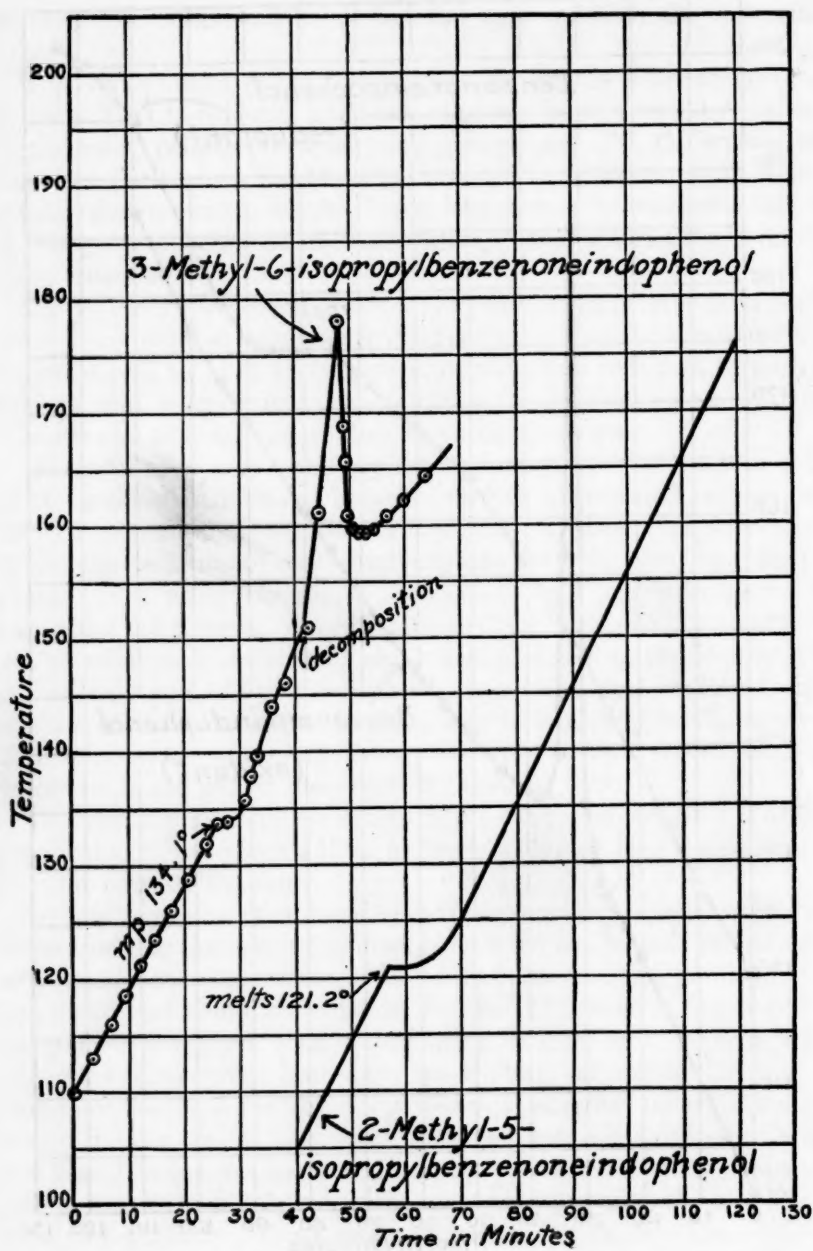


FIG. 2

The temperature-time curves of four compounds are charted graphically in Figures 1 and 2. These illustrate the erratic behavior of this class of derivatives. The experiments are discussed in their proper place in the descriptions of the compounds under heading V.

(d) *Analytical methods.*—The sodium salts, prepared without elaborate efforts to remove the sodium chloride, used in salting out, contain salt in amounts too small to interfere with potentiometric measurements, but in amounts which complicate analysis. If solutions are sufficiently alkaline to prevent formation of some free indophenol there is certain to be a small amount of carbonate in addition to sodium chloride. Spectrophotometric observations show that aqueous solutions of the sodium salts undergo slow decomposition and a history of a preparation is therefore an essential for a reason stated below. Oven drying of the sodium salts usually yields no weight constant enough for the purposes of accurate analyses. In many instances drying near 100° *in vacuo* is to be regarded with suspicion. Acid solutions of indophenols are usually unstable and, like the salts, may be presumed to yield impurities of an ultimate composition similar to the main product. Analyses alone and without a history of the preparation are therefore to be regarded with critical consideration.

For these and a number of similar reasons we placed no emphasis upon analyses but proceeded with two principles in mind. The first is that an indophenol should be prepared in the cleanest and most direct manner (preferred method) with avoidance of too elaborate attempts at purification and should be brought to air-dry state as rapidly as possible. The second is, that a homogenous, smooth titration curve properly performed is the best criterion of the purity desired. Incidentally, it may here be remarked that in the work of this laboratory there have been frequent occasions when a preparation yielding admirable analytical data has been shown to be suspicious electrometrically. Usually a different method of procedure has yielded a compound giving the desired smoothness in the titration curve.

With specific exceptions in individual cases and the general exception of avidity for oxygen, the leuco compounds are more satisfactory from the analyst's viewpoint.

Titanium trichloride titration as applied to the oxidants is not satisfactorily developed. The fundamental difficulty is, of course, that this reagent is usually applied in acid solution (whether with or without tartrates, etc.), while most of the indophenols are unstable in acid solution. It would be preferable to develop a colorimetric titration method in alkaline solution in addition to the potentiometric titrations.

In several instances the amounts of sodium chloride and of sodium indophenol were calculated by the method of indirect analysis as

follows: The mixture consists of water, sodium chloride, and Na-indophenol (carbonate neglected). Then

$$\begin{array}{rcccl} 100\% - \% \text{ water} & = & \text{per cent NaCl} & + & \text{per cent Na-indophenol} \\ a & = & x & + & y \end{array}$$

$$\text{Let } m = \frac{\text{molecular weight of NaCl}}{\text{molecular weight of the sodium salt of the indophenol}}$$

If the sodium determined by analysis is stated in terms of percentage NaCl and called b ,

$$b = x + m y$$

The two equations are now solved for y

$$y = \frac{a - b}{1 - m}$$

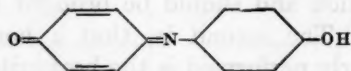
The organically combined chlorine in the chloroindophenols is then the difference between the total chlorine and that of the sodium chloride.

Nitrogen was determined in some cases by the Kjeldahl method and in other cases by combustion.

Halogens and sulphur were determined by combustion in a Parr bomb.

V. Description of the Preparation of 34 Indophenols

NO. 1. BENZENONEINDOPHENOL (INDOPHENOL) (p-INDOPHENOL)



This compound is listed by early investigators under various names such as *phenol blue*, *phenocyanin*, *phenoldichroin*, *quinone phenolimide*, and *indophenol*.

It has been made by a number of methods which will be described in a subsequent paper, an historical review.

Heller (1912) seems to have been the first to isolate and analyze the compound. He produced it by oxidation, with hypochlorite, of a mixture of phenol and p-aminophenol.

We prefer the quinonechloroimide method and, as already stated, we shall refer to it as the preferred method already described in principle. Proportions for 0.1 molar quinonechloroimide 14.15 grams, phenol 9.41 grams, 73 c. c. 3 N sodium hydroxide.

In some instances we have extracted the air-dried sodium salt with ethanol and reprecipitated it with a large volume of ether. The precipitates so formed are voluminous, appear to be very nice preparations when air-dried, but seem to have little advantage over the samples resalted from aqueous solution. It is not practicable in this way entirely to eliminate contaminating salt. Low tempera-

ture (60°) drying failed to bring the material to constant weight in two days. Drying in an oven at 110° caused fluctuations in weight indicative of decomposition and oxidation.

Sample O, for which electromotive force measurements were reported, gave the following for carbon and nitrogen:

Carbon: Theory, 65.16; found, 52.18, 51.86

Nitrogen: Theory, 6.33; found, 5.30, 5.24.

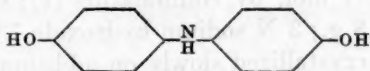
$\frac{C}{N}$ ratio; theory, 10.3; found, 9.9, corresponding
to 96 per cent purity, exclusive of salt.

If we accept the E' value for the titration of this sample (Table 3, page 24, Paper V) as true, the titration of the leuco compound, sample G, yields an E' value differing by only 0.6 millivolts, a discrepancy well within the estimated uncertainties.

The free indophenol was prepared by dissolving the purified sodium salt in sufficient water to make about a 5 per cent solution, cooled to 5°, and then precipitated with carbon-dioxide. The precipitate had a crystalline form. It was washed repeatedly with water and dried in the vacuum desiccator. A sample prepared as above from the sodium salt by Heller's method was recrystallized from benzene. It had an apparent melting point of 141 to 143, but contained two forms of minute crystals—one clear red and the other black with a greenish color by reflected light. Another sample dissolved in acetone and precipitated with petroleum ether had a uniform appearance. It shrank but did not melt between 135° and 136°. Finally, melting point curves were made with 3.5 g. in one case and 4.5 g. in another case of a sample carefully reprecipitated from water and dried. The thermometer was imbedded in the closely packed crystals and the temperature was raised as shown in Figure 1. At about 129° an exothermic reaction took place. There was no visible evolution of gas. The product was viscous at 160° and brittle when cool. It was soluble in dilute sodium hydroxide and gave a blue color which was not the brilliant blue of the sodium indophenol. An alcoholic solution of this product was titrated with standard titanium trichloride and found to have only about 24 per cent of the equivalent of indophenol.

Heller (1912) describes his free indophenol as melting at 160° with weak evolution of gas. We could not duplicate his data.

Leuco-p-indophenol (4,4'-dihydroxydiphenylamine or p,p'-dihydroxydiphenylamine) is



Schneider (1899) made this compound by heating quinol with ammonium chloride and sodium hydroxide between 160° and 180°,

and also by heating p-aminophenol with quinol and fused calcium chloride in the same range of temperature. He states that the melting point of the compound, as crystallized from water, is 174.5°.

Heller (1912) confirmed this with material prepared by reducing the oxidant.

We have described (p. 10) our method of preparing leucoindophenol. Our preparation was first dried *in vacuo* at room temperature over soda lime and sulphuric acid and then in a Schmiedeberg apparatus. In the latter there was a loss corresponding to 0.22 per cent moisture. Tested by the capillary tube method it melted between 174° and 175°. A melting point curve was made with 8 grams of crystals the surfaces of which were slightly purple by air oxidation. This was estimated by titration with titanium trichloride to be 0.28 and 0.31 (average 0.295) per cent oxidized. This product as indicated in Figure 1 melted at 175.5°, the temperature remaining constant for 12 minutes.

Analyses:

Nitrogen: Theory 6.96; found by Kjeldahl, 6.72; 7.06; average, 6.89
Found by combustion, 7.18; 7.16; average, 7.17

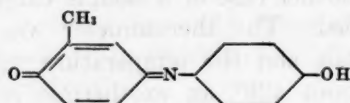
Average of both methods..... 7.03

Carbon: Theory, 71.64; found, 71.00.

Hydrogen: Theory, 5.47; found, 5.48.

As already indicated, the electrometric measurements with this sample were in substantial agreement with those made with the sodium salt of the oxidant.

NO. 2. 2-METHYLBENZENONEINDOPHENOL (O-CRESOLINDOPHENOL)



Heller (1912) made this compound in two different ways, by the oxidation with hypochlorite of—

(a) p-aminophenol and o-cresol

(b) 6-amino-3-hydroxy-2-methylbenzene and phenol.

From a study of the derivatives, he believed the products to be different.

We made preparations from—

(1) Quinonechloroimide and o-cresol

(2) 2-methylquinonechloroimide and phenol.

Proportions for 0.1 mol, by combination (1): Quinonechloroimide 14.2 g.; o-cresol 10.8 g.; 3 N sodium hydroxide 73 c. c.

The sodium salt crystallized slowly on addition of salt, and it was necessary to saturate the solution with sodium chloride and allow the solution to remain in an ice pack for several hours, preferably over night.

Sample D, reported in paper V, was a sample prepared as usual by combination (1) and then extracted with ethanol, precipitated with ether, air-dried, and desiccated one month before use. On further desiccation at 69°, no weights constant enough for purposes of accurate analyses were obtained. The electrometric titration agreed well with that of G (a resalted sample) and with that of E (a sample of the free 2-methylindophenol, all prepared by combination (1) above).

After the publication of paper V, we compared preparations made by the two methods ((1) and (2) above). While the conditions were not so well adjusted for accuracy as in the previous cases, the results were as follows: The sample made by combination (1) gave an average E'_o value (uncorrected for acidity change) of 0.0846 volts, while that by combination (2) gave an average E'_o value (uncorrected for acidity change) of 0.0844 volts. Both measurements were made in a buffer of pH=8.633, for which the E'_o value calculated according to the data of paper V is 0.0851. Were corrections comparable to those described in paper V to be applied, the found and calculated values would be very close. Similar parallel titrations at pH 9.609 gave a E'_o =0.0108 (1) and E'_o =0.0107 (2), each uncorrected for acidity change. The calculated value is 0.0113.

For purposes of comparison, the uncorrected values obtained in parallel titrations are the more significant. The difference of 0.2 millivolt in one case and of 0.1 millivolt in another are well within experimental error, but much larger differences at one, the other, or both pH values would be expected if two different compounds were concerned. Thus the case at hand confirms the results with the two preparations of the meta derivative described in paper V. Apparently only a case of tautomerism is concerned. (See the meta derivative.)

A very interesting discussion of the tautomerism and the amount of the tautomers is given by Fieser (1928).

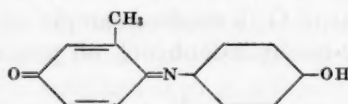
Sample E was prepared by passing carbon dioxide gas into the cold solution of 50 g. of the sodium salt in 500 c. c. of water.

The precipitate was filtered on a Büchner filter, washed thoroughly, and dried in a vacuum desiccator. The beautiful crystals are green by transmitted and red by reflected light. A melting point curve made with 2.8 g. showed a melting point of 162°, at which point the temperature was constant for 12 minutes. Up to 170° no decomposition was evident, but at this temperature the mass became thick and gummy. The dried material gave 6.34 per cent N (theory 6.54). Leuco-2-methylindophenol (4,4'-dihydroxy-3-methyldiphenylamine) was prepared from the sodium salt of the oxidant by reduction with potassium sulphide. The product was crystallized from hot water containing a little hydrogen sulphide and was dried in a vacuum desiccator.

It shrinks in a melting tube at 151° and is completely melted at 152.5 .

Nitrogen: Theory, 6.66 per cent; found, 6.43; 6.50.

NO. 3. 3-METHYLBENZENONEINDOPHENOL (m-CRESOLINDOPHENOL)

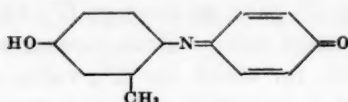


Heller (1912) made this compound by hypochlorite oxidation of—

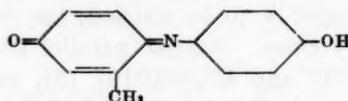
(a) p-aminophenol and m-cresol

(b) 6-amino-3-hydroxyl-1-methylbenzene and phenol.

To the product of the first procedure he ascribed the formula



and to the second



He states that the first product forms a difficultly soluble, well-crystallized sodium salt, while the second product does not, and that it can not be salted out of solution.

We made preparations with—

(1) Quinonechloroimide and m-cresol

(2) 3-methylquinonechloroimide and phenol.

Proportions in combination (1): 14.2 g. quinonechloroimide; 10.8 g. m-cresol; 73 c. c. 3 N sodium hydroxide.

These combinations should give Heller's two compounds with considerable assurance of the position of the methyl.

In preparing these compounds the quinonechloroimides may be dissolved in the respective phenol and the sodium hydroxide slowly added. The reaction proceeded more slowly with combination (2) than with combination (1). In the latter case great care must be exercised to prevent a rise in temperature. In each case solid sodium chloride was added to near saturation to salt out the compounds. Sample C, reported in paper V, was so prepared, but was further purified by solution in alcohol and precipitation with ether. It was air-dried and preserved in a desiccator. It contained 10.51, 10.06 (average, 10.29) per cent Na, analyzed as Na_2SO_4 (theory 9.78), indicating 97 per cent purity if the excess sodium is regarded as sodium chloride. However, nitrogen was low (average 5.03 per cent as compared with 5.96, theory). The titration curve, on the other hand, indicated no significant amount of reducible impurity.

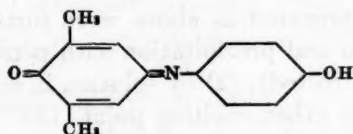
Sample E was the free indophenol made from a resalted preparation of the sodium salt. It was precipitated from the aqueous solution with acetic acid, washed, air-dried, and then dried *in vacuo* over sulphuric acid. Nitrogen: Theory, 6.58; found, 6.50 and 6.43; average, 6.47.

It apparently melted in a capillary at 110° to 111°, but with decomposition.

In reporting the titration data for sample E we had some difficulty in judging the end-point and therefore gave a choice of two tables in paper V, but obviously the calculations of either table are in substantial agreement with the data for sample C.

Unsuccessful attempts were made to isolate the reductant in quantity. The reduction of the oxidant with alkali sulphide proceeds normally, but the reductant could not be crystallized from solution. It separated from solution as an oil. Distillation *in vacuo* or in dry hydrogen gave small yields of an oil which solidified to colorless crystals. These remained colorless while sealed in hydrogen, but on exposure to air were found to be very hygroscopic and sensitive to oxidation.

NO. 4. 2,6-DIMETHYLBENZENONEINDOPHENOL



Preparation.—This compound is made very satisfactorily from quinonechloroimide and 2,6-dimethylphenol by the preferred procedure.

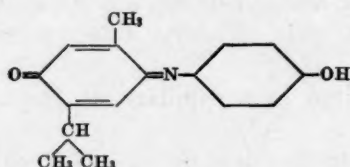
Proportions for 0.1 mol: 14.2 g. quinonechloroimide; 12.2 g. 2,6-dimethylphenol; 73 c. c. 3 N sodium hydroxide.

These two solid compounds were put into sufficient water to make a slurry that was easily stirred, ice added, and when cold the 3 N solution of sodium hydroxide was dropped in slowly. Ice was added from time to time to maintain the temperature near 0°. After the reaction was complete (about one hour), the solution was filtered. The sodium indophenol was salted out by adding solid sodium chloride in sufficient quantity to make about a 20 per cent salt solution. The green crystals were filtered and resalted from a saturated solution. The compound seemed to be fairly pure.

The sodium salt of the oxidant was reduced easily in aqueous solution with alkali sulphides. The preparation of the leuco derivative in pure state has not been attempted.

The potentiometric measurements will be reported in a subsequent paper.

NO. 5. 3-METHYL-6-ISOPROPYLBENZENEINDOPHENOL (THYMOLINDOPHENOL)



Proportions for 0.1 mol: 14.2 g. quinonechloroimide; 15.0 g. thymol; 73 c. c. 3 N sodium hydroxide.

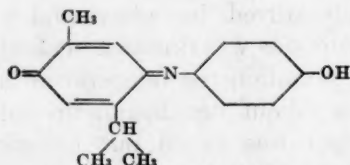
This indophenol was isolated in the free form. After preparation of the sodium salt from quinonechloroimide and thymol, according to the preferred method, one-tenth mol was dissolved in three liters water and precipitated with carbon dioxide. The washed precipitate was dried *in vacuo* at 110°.

Nitrogen by combustion: theory, 5.49; found, 5.95; 6.01. In a capillary the apparent melting point was 134.5°. The melting was slow to a viscous fluid. A melting point curve was made with 2 grams. It showed a constant temperature at 134.1° for four minutes. At 151° decomposition set in. The curve is shown in Figure 2.

Different samples prepared as above were further treated (1) by solution in chloroform and precipitation with petroleum ether, melting point, 134° (uncorrected); (2) by solution in acetone and precipitation with petroleum ether, melting point, 134° (uncorrected); (3) reprecipitation from aqueous solution with carbon dioxide, melting point, 134° (uncorrected). In certain instances we obtained large, garnetlike crystals.

The titration curve (Table 13, paper V) was very satisfactory.

NO. 6. 2-METHYL-5-ISOPROPYLBENZENEINDOPHENOL (CARVACROLINDOPHENOL)



This indophenol was isolated in the free state and was prepared as was the thymol derivative, but from quinonechloroimide and carvacrol (proportions for 0.1 mol, same as for thymolindophenol).

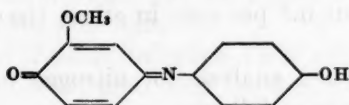
Nitrogen: Theory, 5.49; found, 5.49; 5.37.

The melting point in a capillary was between 121° and 125°. A melting point curve made with 2 grams of material showed distinct melting to a clear liquid at 121.2°. Unlike the thymol derivative no

evidence of decomposition was noticed up to 171° , at which point observations were discontinued. See Figure 2.

The titration curve indicated a pure compound.

NO. 7. 2-METHOXYBENZENONEINDOPHENOL (GUAIACOLINDOPHENOL)

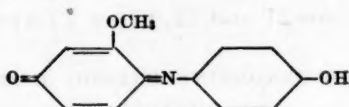


This was the only indophenol made in the preliminary trials with the hypochlorite method of preparation which was used in the final potentiometric measurements.

One-tenth mol guaiacol (12.4 g.) was dissolved in 100 c. c. 3 N sodium hydroxide and mixed with a solution of 0.1 mol (14.9 g.) p-aminophenolhydrochloride in 50 c. c. water. Sodium hydroxide, 3 N, was chlorinated adjusted to $\text{pH} = 11.5$ with the aid of the flash-color of indicators, and saturated with sodium phosphate and sodium chloride at the temperature of an ice-salt mixture. The available chlorine content was then assayed and the proper amount added slowly to the guaiacol-aminophenol mixture and cooled in an ice-salt bath. The sodium salt of guaiacolindophenol separated. It was filtered, air-dried, extracted with absolute methanol, precipitated with ether, and dried over soda lime *in vacuo*.

The free compound was precipitated by acetic acid from a solution of the sodium salt. It melted at 171° . No analyses were made and only one titration is described in the preliminary studies of paper VI.

NO. 8. 3-METHOXYBENZENONEINDOPHENOL (METHYLRESORCINOLINDOPHENOL)



To 62 g. of resorcinol monomethyl ether, 100 c. c. of 5 N sodium hydroxide were added in the presence of 300 g. of crushed ice. The stirred solution was kept near 0° during the synthesis by means of a salt-ice bath. To the cold solution 70 g. of freshly prepared quinone-chloroimide, made into a paste, were added from time to time simultaneously with 120 c. c. of 5 N sodium hydroxide. The alkali was added slowly, drop by drop, and stirring was continued one-half hour after all the ingredients had been added. The dye would not salt out with sodium chloride, consequently the solution was made acid with 5 per cent acetic acid and then 10 per cent added in excess. The free acid of the indophenol precipitated first as a gummy mass which broke up on stirring and was easily filtered. A better procedure was to dilute the solution to four liters and saturate it with

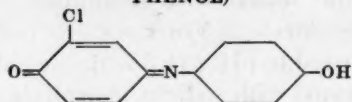
carbon dioxide. The precipitate was washed by agitation in three liters of water, filtered, and dried at 40° to 45° and 70 mm. pressure. Attempts to purify the dried compound by recrystallization from solvents were unsuccessful. It can be precipitated from an ether solution by an equal volume of petroleum benzine; but, since it is only soluble to about 0.5 per cent in ether, the procedure was quite unsatisfactory.

Nitrogen combustion analysis for nitrogen of the crude, washed and dried product was as follows:

Nitrogen: Found, 6.02; theory, 6.11; purity, 98.5 per cent.

No electrode measurements have been made of this compound.

NO. 9. 2-CHLOROBENZENEINDOPHENOL (O-CHLOROPHENOLINDOPHENOL)

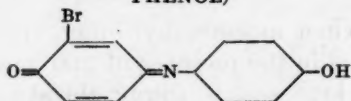


Prepared by the preferred method (proportions for 0.1 mol: 14.2 g. quinonechloroimide; 12.9 g. o-chlorophenol; 73 c. c. 3 N sodium hydroxide. The quinonechloroimide is dissolved in the phenol and the reaction is maintained between 10° and 0° as the alkali is added. At low temperature the reaction is slow.

The sodium salt separated as a pasty mass, difficult to filter. By solution in water and resalting, the crystals were larger and easily filtered. They were dissolved in absolute alcohol and thrown out with a large volume of anhydrous ether. Attempts to bring the material to constant weight for analysis failed.

The leuco compound was not obtained in crystalline form. The titration curves (Tables 21 and 22, paper V) were excellent.

NO. 10. 2-BROMOBENZENEINDOPHENOL (O-BROMOPHENOLINDOPHENOL)



Prepared by preferred procedure.

Proportions for 0.1 mol: quinonechloroimide, 14.2 g.; o-bromophenol, 17.3 g.; 3 N sodium hydroxide, 73. c. c.

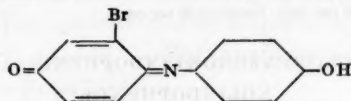
The imide is dissolved in the phenol, and the alkali is then added slowly with stirring while the mixture is maintained near zero. The precipitated sodium salt filtered slowly; but upon solution and resalting, beautiful crystals were obtained, and these filtered well. The material was dissolved in absolute alcohol and precipitated with

ether. It was dried at low temperature (about 40°). A portion heated just below 100° in air carbonized. The preparation contained considerable salt (Na: Found, 10.6 per cent; theory, 7.66 per cent) and could not be brought to a certain and constant weight by low temperature drying. No analyses. Titration curve was a little uncertain at the beginning.

The preparation of the free indophenol was attended by difficulties. Gummy material appeared soon after the first precipitation.

The leuco product was not obtained in crystalline form.

NO.11. 3-BROMOBENZENONEINDOPHENOL (m-BROMOPHENOLINDOPHENOL)



Prepared by the preferred method from quinonechloroimide and m-bromophenol. Proportions as for o-bromo derivative. The salted sodium salt was dissolved in absolute alcohol and precipitated with dry ether. The product was dried below 40°. Nitrogen: Theory, 5.02; found, 6.17; 6.54; average, 6.36. Sodium: Theory, 7.66; found, 8.81.

Neither the leuco compound nor the free indophenol was prepared.

Notwithstanding the apparent impurity by analyses, the material gave titration curves which, with reasonable corrections, were highly satisfactory.

TABLE 1.—Analyses of indophenols derived from 2,6-dichloroquinonechloroimide

	2,6-dichloro-benzenoneindophenol	Leuco derivative	2,6-dichloro-benzenoneindophenol 3'-methylphenol	Leuco derivative + 1 H ₂ O	2,6-dichloro-benzenoneindophenol 2'-methylphenol	2,6-dichloro-benzenoneindophenol 3'-chloroindophenol	1-naphthanone-2-sulphonic acid indo-3',5'-dichlorophenol
No. of compound.....	12	12	13	13	14	15	32
Moisture.....	11.10	0.0	7.36	16.20	0.0	17.03	11.28
Nitrogen.....	3.58	{4.97 4.94}	3.61	4.88	{4.77 4.88}	3.40	2.70
Chlorine.....	27.56	{26.96 26.86}	—	23.83	{24.39 24.57}	27.97	—
Sodium.....	12.09	0.0	12.44	0.0	0.0	6.89	10.71
NaCl (calculated).....	16.03	0.0	17.11	0.0	0.0	3.14	5.20
Cl in organic combination (calculated).....	17.86	{26.96 26.86}	—	25.83	{24.39 24.57}	26.20	—
Indophenol by calculation.....	72.95	100.0	75.50	100.0	100.0	79.82	83.52
Indophenol by TiCl ₃ titration.....	79.6	—	71.2	—	—	80.21	85.46

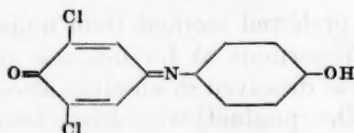
Sulphur, 6.17 per cent.

In the following comparisons of analysis and theoretical composition, the pure sodium salts of the indophenols are considered to be the residue after subtracting the moisture and the salt. The analyses justify these assumptions.

		2,6-dichloro-benzenoneindo-phenol	Leuco-derivative	2,6-dichloro-benzenoneindo-3'-methylphenol	Leuco-derivative + 1 H ₂ O	2,6-dichloro-benzenoneindo-2'-methylphenol	2,6-dichloro-benzenoneindo-3'-chloroindo-phenol	1-naphthanone-2-sulphonic acid indo-3',5'-dichloro-phenol
N	Theory	4.83	5.18	4.60	4.63	4.93	4.32	3.15
	Found	4.91	4.96	4.78	4.88	4.83	4.26	3.23
Cl	Theory	24.48	26.29		23.52	25.00	32.83	
	Found	24.48	26.91		23.83	24.48	32.83	
S	Theory							7.21
	Found							7.39
Water	Theory				(1)			
	Found				(1)			

¹ Theory for 1 mol. H₂O, 5.96 per cent; found, 6.20 per cent.

NO. 12. 2,6-DICHLOROBENZENONEINDOPHENOL (2,6-DICHLOROPHENOLINDOPHENOL)



Prepared by the preferred method (proportions for 0.1 mol: 21.0 g. 2,6-dichloroquinonechloroimide; 9.4 g. phenol; 73 c. c. 3 N sodium hydroxide).

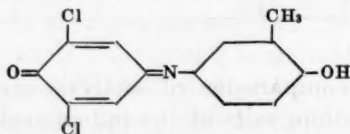
The chloroimide is dissolved in the phenol and the alkali is added slowly as the temperature is maintained below 10°. The phenol solution of the chloroimide should not be allowed to stand, but should be treated immediately. In one of our experiments a violent exothermic reaction took place within about 15 minutes after the solution was made.

The sodium salt which separates is so little soluble that re-solution for subsequent resalting requires an unusual amount of water.

The sample employed in potentiometric studies (paper VII) was twice resalted and dried in a vacuum desiccator at room temperature. The analysis is given in Table 1.

The leuco product formed by reduction with potassium sulphide solution was purified by crystallization from 25 per cent alcohol. Melting point 175°. For analyses see Table 1.

NO. 13. 2,6-DICHLOROBENZENONEINDO-3'-METHYLPHENOL (2,6-DICHLOROPHENOLINDO-O-CRESOL)

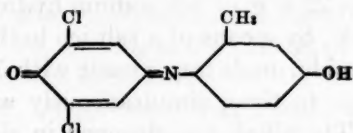


Prepared by the preferred method (proportions for 0.1 mol: 21.0 g. 2,6-dichloroquinonechloroimide; 10.8 g. o-cresol; 73 c. c. 3 N

sodium hydroxide). The chloroimide is dissolved in the o-cresol and the alkali slowly added while the mixture is held below 10°. The sodium salt precipitates readily and the mixture becomes so thick that addition of water may become necessary near the completion of the reaction. The sample used electrometrically was one which had been resalted from solution and dried *in vacuo* over soda lime at room temperature. Its analysis is given in Table 1.

The leuco compound was formed by reduction with potassium sulphide solution and was purified by crystallization from a 20 per cent solution of ethanol in water. It melted at 108°. On drying at 90° to constant weight in a Schmeideberg apparatus there was a loss of weight corresponding to one mol of water of crystallization. The material then melted at 114°. For analysis see Table 1, and for titration see Table 6, paper VII.

NO. 14. 2,6-DICHLOROBENZENONEINDO-2'-METHYLPHENOL (2,6-DICHLOROPHENOLINDO-m-CRESOL)

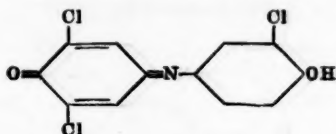


Prepared in practically the same way and with the same proportions as used for the o-cresol derivative. The analysis is given in Table 1.

The leuco compound, formed by the usual method, was crystallized from methanol and dried in a vacuum desiccator. It melted at 209°. A second crop of crystals was obtained by diluting, while hot, the methanol solution with water (about half and half) and then cooling. The melting point of this material was between 208° and 210°.

A portion was dissolved in dilute ammonium hydroxide, the solution was decolorized with hydrogen sulphide, and the free acid was precipitated by addition of dilute hydrochloric acid. The melting point was between 201° and 205°.

NO. 15. 2,6-DICHLOROBENZENONEINDO-3'-CHLOROINDOPHENOL (2,6-DICHLOROINDO-O-CHLOROPHENOL)



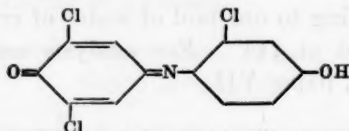
Prepared by the preferred method.

Proportions for 0.1 mol: 21.0 g. 2,6-dichloroquinonechloroimide; 12.9 g. o-chlorophenol; 73 c. c. 3 N sodium hydroxide.

The imide is very soluble in the chlorophenol. The crystals of the sodium salt separate from the mixture readily. The material was resalted from aqueous solution. The crystals are green with a purple appearance by transmitted light. The preparation, made as outlined above, was washed thoroughly and dried at room temperature *in vacuo*. The analysis is shown in Table 1, and the titration data are given in Table 8 of Paper VII.

The leuco compound was not prepared.

NO. 16. 2,6-DICHLOROBENZENEINDO-2'-CHLOROPHENOL (2,6-DICHLOROPHENOLINDO-M-CHLOROPHENOL)

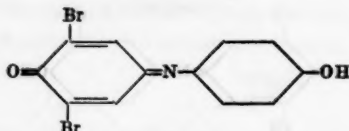


To 12.8 gm. of metachlorophenol there was added in the presence of 75 gm. of crushed ice, 22 c. c. of 5 N sodium hydroxide. The stirred solution was kept at 0°, by means of a salt ice bath, and to it 21 g. of 2, 6-dichloroquinoneimide, made into a paste with 50 c. c. of ice water, were added from time to time, simultaneously with 22 c. c. of 5 N sodium hydroxide. The alkali was dropped in slowly, and after all ingredients had been added, stirring was continued for one-half an hour. The dye was salted out, redissolved in water, filtered, resalted with an equal volume of filtered saturated salt solution and washed once with a one-fourth saturated salt solution. The indophenol, so salted, when dried in a vacuum desiccator over soda lime-calcium chloride mixture gave the following analysis for nitrogen on combustion:

Nitrogen: Found, 3.65; theory, 4.31.

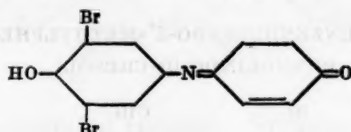
The compound obtained by this method contained considerable salt. The purity calculated from the nitrogen determination is 84.7 per cent. This was checked by a new titration method, to be described later, showing 85.2 per cent indophenol.

NO. 17. 2,6-DIBROMOBENZENEINDOPHENOL (2,6-DIBROMOPHENOLINDOPHENOL)



Möhlau (1883) prepared this compound from 2, 6-dibromoquinone-chloroimide and phenol in alcoholic solution and also by the oxidation with bichromate of equal molar quantities of phenol and 2, 6-dibromop-aminophenol in aqueous alkaline solution. He did not obtain a

melting point of the free indophenol. Möhlau gave the formula indicated above, but Heller (1912) took exception to this for the reason that the compound, when treated with acids, yields quinone and dibromo-*p*-aminophenol. He therefore ascribed the formula



On entirely different grounds Cohen, Gibbs, and Clark (1924) were led to believe that the latter formula probably represent the tautomer predominant in aqueous solution.

We prepared the sodium salt by the preferred method.

Proportions for 0.1 mol: 29.9 g. 2,6-dibromoquinonechloroimide; 9.4 g. phenol; 73 c. c. 3 N sodium hydroxide. Very little sodium chloride needs to be added to produce a copious precipitate of the sodium salt.

For sample C the carbon: nitrogen ratio, for which we are indebted to R. M. Hann and L. J. Jenkins of the Bureau of Chemistry, Department of Agriculture, was as follows:

Carbon: Theory, 38 per cent; found 35.18 and 35.40

Nitrogen: Theory, 3.69 per cent; found 3.22 and 3.35

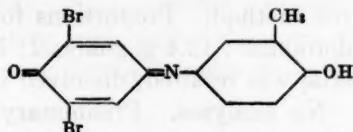
$\frac{C}{N}$: Theory 10.3; found 10.7

Our titrations, in *alkaline solutions* of two samples of the oxidant are shown in Tables 2, 3, and 4 of Paper VI. A titration of neutral solution (Table 5) was not so satisfactory.

Möhlau (1883) describes the leuco compound obtained by reduction with sulphur dioxide in warm water, as colorless prisms melting at 170°, with darkening.

We reduced the oxidant at 30° with potassium sulphide and crystallized the product from 20 per cent methanol. We did not confirm Möhlau in regard to the melting point. One preparation melted at 181°; another showed signs of softening at 173°, but was not melted until the temperature 179° was reached.

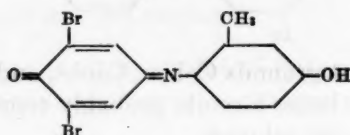
NO. 18. 2,6-DIBROMOBENZENEINDO-3'-METHYLPHENOL (2,6-DIBROMOPHENOLINDO-O-CRESOL)



Möhlau (1883) prepared this in solution from 2,6-dibromoquinonechloroimide and *o*-cresol but did not isolate it. We used the same intermediate in the preparation by the preferred method.

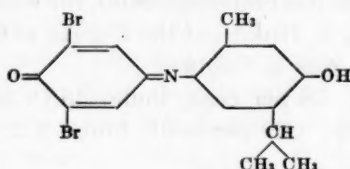
Proportion for 0.1 mol: 29.9 g. 2,6-dibromoquinonechloroimide; 10.8 g. o-cresol; 73 c. c. 3 N sodium hydroxide. The resalted material was dissolved in ethanol and precipitated with ether. No analyses were made. Preliminary titrations were described in Paper VII.

NO. 19. 2,6-DIBROMOBENZENONEINDO-2'-METHYLPHENOL (2,6-DIBROMOPHENOLINDO-m-CRESOL)



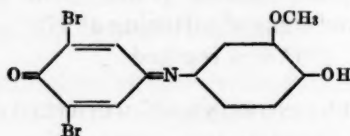
Prepared like the o-cresol derivative. No analyses. Preliminary electrometric measurements described in Paper VII.

NO. 20. 2,6-DIBROMOBENZENONEINDO-2'-METHYL-5'-ISOPROPYLPHENOL (2,6-DIBROMOPHENOLINDOTHYMOL)



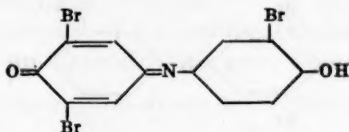
Prepared by the preferred method. Proportions for 0.1 mol: 29.9 g. 2,6-dibromoquinonechloroimide; 15.0 g. thymol; 73 c. c. 3 N sodium hydroxide. After resalting the sodium salt the free indophenol was precipitated from the solution by acid as in the case of the unbrominated thymolindophenol. No analyses. Preliminary titration data in Paper VII.

NO. 21. 2,6-DIBROMOBENZENONE-3'-METHOXYPHENOL (2,6-DIBROMOPHENOLINDOGUAIACOL)



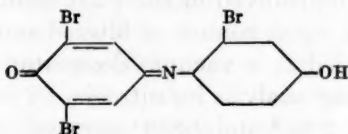
Prepared by preferred method. Proportions for 0.1 mol: 29.9 g. 2,6-dibromoquinonechloroimide; 12.4 g. guaiacol; 73 c. c. 3 N sodium hydroxide. The material was resalted, dissolved in alcohol and precipitated with ether. No analyses. Preliminary titration data in Paper VII.

NO. 22. 2,6-DIBROMOBENZENONEINDO-3'-BROMOPHENOL (2,6-DIBROMO-INDO-O-BROMOPHENOL)



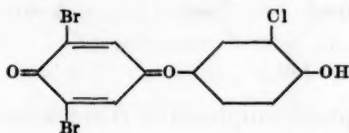
Prepared by the preferred method. Proportions for 0.1 mol: 29.9 g. 2,6-dibromoquinonechloroimide; 17.3 g. o-bromophenol; 73 c. c. 3 N sodium hydroxide. The material was resalted, dissolved in ethanol and a small quantity recovered on addition of ether. The material quite evidently contained salt. Preliminary titration data shown in Tables 14 and 15 Paper VII. No analyses.

NO. 23. 2,6-DIBROMOBENZENONEINDO-2'-BROMOPHENOL (2,6-DIBROMO-INDO-M-BROMOPHENOL)



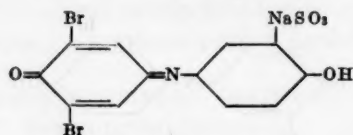
Prepared by preferred method with 2,6-dibromoquinonechloroimide and m-bromophenol. Proportions as with o-bromophenol derivative. The salt was extracted with ethanol and precipitated with ether. No analyses. Preliminary titration data in Tables 16 and 17, Paper VII.

NO. 24. 2,6-DIBROMOBENZENONEINDO-3'-CHLOROPHENOL (2,6-DIBROMO-PHENOLINDO-O-CHLOROPHENOL)



Prepared by preferred method. Proportions for 0.1 mol: 29.9 g. 2,6-dibromoquinonechloroimide; 12.9 o-chlorophenol; 76 c. c. 3 N sodium hydroxide. The indophenol was extracted with ethanol and precipitated with ether with poor yield. No analyses. Preliminary titration data of two different samples in Tables 18 and 19 of Paper VII.

NO. 25. 2,6-DIBROMOBENZENONEINDO-3'-SODIUMSULPHONATEPHENOL
(2,6-DIBROMOPHENOLINDOPHENOL-O-SULPHONATE)



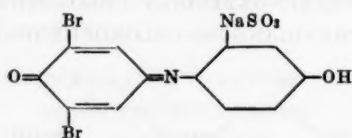
To 20 g. of orthophenol sodiumsulphonate there were added 22 c. c. of 5 N sodium hydroxide in the presence of 75 g. of crushed ice. Thirty g. of 2,6-dibromoquinonechloroimide were made into a paste with 50 c. c. of ice water and added from time to time simultaneously with 22 c. c. of 5 N sodium hydroxide, with constant stirring. The alkali should be added drop by drop and the temperature of the reaction controlled between 5° and 10° by bits of ice. The stirring was continued for one-half hour after all of the ingredients had been added. Sodium chloride, 25 g. per 100 g. of solution, salts out the dye. The dye was redissolved in the least amount of water filtered and resalted with an equal volume of filtered saturated salt solution. The product was dried in a vacuum desiccator over sulphuric acid and gave the following analysis for nitrogen by combustion:

Nitrogen: Found, 2.842 and 2.839; average, 2.841; theory, 2.912.

On this basis the purity of the compound was 97.5 per cent and checked by a titration method it gave 96 per cent indophenol.

Electrode measurements upon this compound will be reported in a later paper.

NO. 26. 2,6-DIBROMOBENZENONEINDO-2'-SODIUMSULPHONATEPHENOL
(2,6-DIBROMOPHENOLINDOPHENOL-M-SULPHONATE)



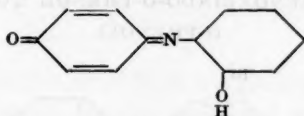
To 10 g. of metaphenolsulphonate there were added 11 c. c. of 5 N sodium hydroxide in the presence of 30 g. of crushed ice. With constant stirring, 15 g. of 2,6-dibromoquinonechloroimide were added as a thick paste and then 22 c. c. of 2.5 N sodium hydroxide slowly dropped in. The temperature was kept below 5° by means of a salt ice bath. Sodium hydroxide, 25 g. per 100 g. of solution, salts out the dye as scintillating green plates. The indophenol was dissolved in water, filtered, and resalted upon the addition of a filtered saturated salt solution equal to two-thirds of its volume. Since this indophenol does not salt out as readily as its isomer the dried sample contained a higher percentage of salt as an impurity.

Analysis for nitrogen by combustion gave the following:

Nitrogen: Found, 2.576 and 2.597 per cent; average, 2.5865; theory, 2.912 per cent.

On this basis the purity of the compound was 88.8 per cent, and checked by a titration method which gave 89.2 per cent indophenol.

NO. 27. BENZENONEINDO-O-PHENOL (PHENOLINDO-O-PHENOL)



So far as we are aware, the series of orthoindophenols prepared about three years ago, of which this is the simplest representative, is new.

This compound was prepared from o-quinonechloroimide and phenol by the preferred procedure.

Proportions for 0.1 mol: 14.2 g. o-quinonechloroimide; 9.4 g. phenol; 73 c.c. 3 N sodium hydroxide.

The quinonechloroimide was dissolved in the phenol and the alkali was added with especial care near the beginning to maintain the temperature at 0°. The odor of ammonia is evident as the temperature rises. The green crystals salt out easily on addition of salt. The material was dissolved in water and resalted.

The leuco product was formed by the preferred method and crystallized from warm water. It is colorless when first crystallized but unless adequately protected from air will take on surface color. It apparently dried *in vacuo* over soda lime at room temperature. The preparation softened slightly at 168.5° and completely melted at 169.8°. When further dried at 100° *in vacuo* over sulphuric acid there was a loss in weight equaled to 0.26 per cent moisture.

Analyses:

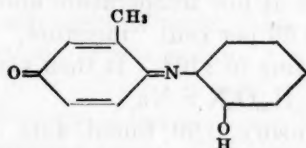
Nitrogen: Theory, 6.96 per cent; found, 6.87, 6.69; average, 6.78.

Carbon: Theory, 71.64 per cent; found, 71.20.

Hydrogen: Theory, 5.47 per cent; found, 5.65.

The electrometric data are given in Tables 20 and 21, paper VI.

NO. 28. 3, METHYLBENZENONEINDO-O-PHENOL (M-CRESOLINDO-O-PHENOL)



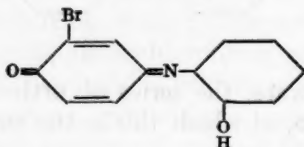
As in the case of the previous compound this is apparently new. It was prepared by the preferred method. Proportions for 0.1 mol: 14.2 g. o-quinonechloroimide; 10.8 g. m-cresol; 73 c. c. 3 N sodium hydroxide.

The reaction did not proceed as smoothly as in the former case and the yield was poor.

The leuco compound could not be obtained in crystalline form.

The titration curve was satisfactory. See Tables 22 and 23, paper VI.

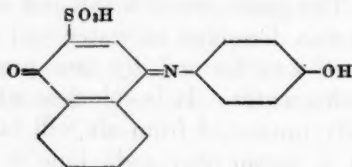
NO. 29. 2-BROMOBENZENONEINDO-O-PHENOL (2-BROMOPHENOLINDO-O-PHENOL)



Prepared by the preferred method. Proportions for 0.1 mol: 14.2 g. o-quinonechloroimide; 17.3 g. o-bromophenol; 73 c. c. 3N sodium hydroxide.

Titration data shown in Table 24, paper VI.

NO. 30. 1-NAPHTHANONE-2-SULPHONICACID INDOPHENOL (1-NAPHTHOL-2-SULPHONICACID INDOPHENOL)



Prepared by the preferred method: Proportions for 0.1 mol: 14.2 g. quinonechloroimide; 24.6 g. sodium salt of 1-naphthol-2-sulphonic-acid (Schaffer's α -salt); 73 c. c. 3N sodium hydroxide. In the preparation 74 c. c. 3 N sodium hydroxide was used. The material was salted out, filtered, and washed with cold salt solution. The mass was dissolved and the mono sodium salt precipitated by carbon dioxide. The filtered precipitate, after drying on a porous plate, was extracted with hot absolute alcohol from which there were formed beautiful, fine barlike crystals.

A sample dried first at low temperature and gradually brought to 105°, with a loss of 5.99 per cent "moisture," remained constant in weight on further heating to 110°. It then yielded the following:

Calculated for $C_{16}H_{10}O_5N.S Na$

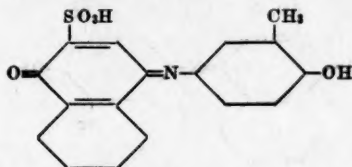
Nitrogen: Theory, 3.99; found, 4.02, 3.98; average, 4.00.

Sulphur: Theory, 9.13; found, 9.08, 8.94; average, 9.01.

Sodium: Theory, 6.55; found, 6.57, 6.57; average, 6.57.

This compound yielded very satisfactory electrode measurements, as reported in paper III.

NO. 31. 1-NAPHTHANONE-2-SULPHONICACID INDO-3'-METHYLPHENOL
(1-NAPHTHOL-2-SULPHONICACID INDO-O-CRESOL)



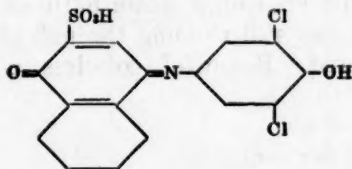
This indophenol was prepared from o-cresolquinonechloroimide and 1-naphthol-2-sulphonicacid by the preferred method. The 1-naphthol-2-sulphonicacid was dissolved in water, a large quantity of crushed ice was added, and the mixture stirred. When the temperature reached 0° the o-cresolquinonechloroimide was added and a 10 per cent solution of sodium hydroxide slowly dropped in until 10 per cent excess had been added. The stirring was continued for about one hour and ice was added from time to time as it melted. Sodium chloride was then added and the disodium salt of the indophenol was separated. It was filtered on a Büchner funnel, dissolved in water, filtered and reprecipitated by adding sodium chloride. The crystals are beautiful green bronze.

The monosodium salt is precipitated from solution by carbon-dioxide and crystallized from absolute alcohol.

After drying in a vacuum desiccator, a determination of sodium gave 6.15 per cent. The theory for the monosodium salt is 6.67 per cent.

The leuco derivative was not prepared.

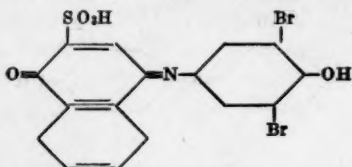
NO. 32. 1-NAPHTHANONE-2-SULPHONICACID INDO-3',5'-DICHLOROPHENOL
(1-NAPHTHOL-2-SULPHONICACID INDO-3',5'-DICHLOROPHENOL)



Prepared by the preferred procedure. Proportions for 0.1 mol: 21.0 g. 2,6-dichloroquinonechloroimide; 24.6 g. sodium salt of 1-naphthol-2-sulphonicacid; 73 c. c. sodium hydroxide.

The disodium salt is quite soluble but salts out well on the addition of sodium chloride in the form of beautiful needles, bronze colored by reflected, blue by transmitted light. The compound was dried over soda lime *in vacuo* at room temperature. Analyses are given in Table 1 and in paper VII, Table 11 are shown the titration data.

NO. 33. 1-NAPHTHANONE-2-SULPHONICACID INDO-3',5'-DIBROMOPHENOL
(1-NAPHTHOL-2-SULPHONICACID INDO-3',5'-DIBROMOPHENOL)



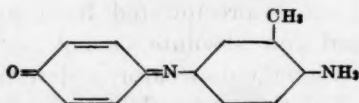
Prepared by the preferred method. Proportions for 0.1 mol: 29.9 g. 2,6-dibromoquinonechloroimide; 24.6 g. sodium salt of 1-naphthol-2-sulphonicacid; 73 c. c. 3 N sodium hydroxide.

The reaction proceeds smoothly and the disodium salt of the indophenol is easily salted out.

No reports of the titration were made, for the reason that the dichloro compound seems to be equally useful and cheaper to prepare.

The leuco compound was formed by reduction with potassium sulphide and precipitation with dilute hydrogen chloride. It was crystallized from very dilute acid, and melted at about 190°.

NO. 34. BENZENONE INDO-3'-METHYLANILINE (O-TOLUIDINE
INDOPHENOL)



H. A. Lubs kindly presented to us an impure sample of this compound. We found no method for its satisfactory purification in the oxidized state. The leuco compound was therefore formed by reduction as follows. Fifty g. of the oxidant were shaken with 100 c. c. of water while hydrogen sulphide was bubbled through the solution. The flask was then placed on a steam bath and heated to 90° while hydrogen sulphide was still running through the solution. The hot solution was filtered. Beautiful colorless crystals separated on cooling.

Analyses:

Moisture, 0.97 per cent.

Nitrogen: Theory, 13.08 per cent; found, 12.5 and 12.88 per cent.

The melting point was not sharp. Shrinkage occurred at 141° and melting near 148°.

VI. Summary

In this paper there is described the preparation of 34 indophenols, many of which are new.

Some of the properties of these compounds are discussed, especially the melting points; 2 text figures are furnished, and references are given to the electrode potential data of prior publications.

The most useful of the indophenols described in this paper are those numbered 1, 9, 12, 13, 15, 25, 26, 30, and 32.

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THE HISTORY OF THE
CITY OF BOSTON

From the first settlement of the city in 1630 to the present time. The city of Boston was founded by a group of Puritan settlers who came to the Massachusetts Bay in 1630. They were led by John Winthrop, who gave the city its name. The city grew rapidly and became one of the most important cities in the New England colonies. It was the site of the Boston Tea Party in 1773, which led to the American Revolution. The city was also the site of the Battle of Boston in 1775, which was a decisive victory for the British. The city has since become a major center of commerce and industry in the Northeast. It is home to many of the largest corporations in the United States, including Microsoft, Amazon, and Google. The city is also known for its rich cultural life, with many museums, theaters, and universities. The city is a beautiful city with many parks and green spaces. It is a city that is full of life and energy. It is a city that is proud of its history and its future.

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TREASURY DEPARTMENT
UNITED STATES PUBLIC HEALTH SERVICE
DEC 27 1925
HUGH S. CUMMING, SURGEON GENERAL
DETROIT, MICH.

THE NOTIFIABLE DISEASES

**PREVALENCE DURING 1927 IN CITIES
OF OVER 100,000**

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SUPPLEMENT No. 70
TO THE
PUBLIC HEALTH REPORTS



UNITED STATES
GOVERNMENT PRINTING OFFICE
WASHINGTON
1928

UNITED STATES PUBLIC HEALTH SERVICE
TREASURY DEPARTMENT
HUGH S. CUMMINGS, SURGEON GENERAL
CHICAGO, ILL.

THE NOTIFIABLE DISEASES

PREVALENCE DURING 1927 IN CITIES
OF OVER 100,000

SUPPLEMENT NO. 10
TO THE
PUBLIC HEALTH REPORTS



UNITED STATES
GOVERNMENT PRINTING OFFICE
WASHINGTON
1928

THE NOTIFIABLE DISEASES

PREVALENCE DURING 1927 IN CITIES OF OVER 100,000¹

The following tables were compiled from data furnished by the health officers of the cities.

The following is a list of the diseases included:

Anthrax.
Chicken pox.
Dengue.
Diphtheria.
Influenza.
Lethargic encephalitis.
Malaria.
Measles.
Meningococcus meningitis.
Mumps.
Pellagra.
Pneumonia (all forms).
Pollomyelitis.

Rabies in animals.
Rabies in man.
Scarlet fever.
Septic sore throat.
Smallpox.
Tuberculosis (all forms and respiratory system).
Tularaemia.
Typhoid fever.
Typhus fever.
Undulant fever.
Whooping cough.

The populations given, and which were used in computing the rates, were estimated as of July 1, 1927, by the Bureau of the Census. These estimates are based on the Federal censuses of 1910 and 1920 or on State censuses later than 1920. In a few cases, where there is reason to believe that the results thus obtained are far from correct, no estimate is made. The number of cases and deaths occurring from each disease in these cities is given but no rates are computed.

The estimated expectancy given in the tables for some of the diseases is the result of an attempt to ascertain from the experience of recent years how many cases of the disease under consideration might be expected in 1927. In most instances the estimated expectancy is the median number of cases reported by the city for the years 1920 to 1926, inclusive. When several epidemics have occurred during these years, or when for other reasons the median is not satisfactory, epidemic years are excluded, and the estimated expectancy is the mean of the number of cases reported for the nonepidemic years. The aim has been to ascertain how many cases of each disease may reasonably be expected in the absence of epidemics.

The column headed "Number of years" shows the number of years later than 1919 for which data were available for each city.

In comparing the figures for 1927 with the estimated expectancy, averages, or with reports for preceding years, it should be borne in mind that for several years there has been a gradual improvement in

¹ Data for cities having 10,000 to 100,000 population are published in Supplement No. 72.

the reporting of communicable diseases. An increase in the number of cases reported may be due to better reporting rather than to an increase in the number of cases occurring.

In studying these tables it should be kept in mind that a relatively large number of reported cases of a communicable disease as indicated by a high case rate (and more especially when accompanied by a relatively small number of deaths, as indicated by a low fatality rate) usually means that the health department of the city reporting is active and that the cases of the disease are being well reported by the practicing physicians. It does not usually mean that the disease is more prevalent in that city than in other cities. A high fatality rate may mean that the disease was unusually virulent in a city; that the physicians did not treat the disease in that city with the success usual elsewhere; or that the practicing physicians did not report all of their cases to the health department. On the other hand, an unusually low fatality rate may be due to the fact that the disease in the city was unusually mild; that the physicians treated it with unusual success; that the practicing physicians reported their cases satisfactorily; or that the registration of deaths was incomplete or the assignment of the causes of death inaccurate.

Cities which did not report either cases or deaths of a certain disease in 1927 (except smallpox) are not included in the table for that disease.

The following table gives a comparison of the rates for some of the principal communicable diseases in the large cities of the United States for the years 1922, 1923, 1924, 1925, 1926, and 1927:

	Cases		Deaths	
	Number of cities	Cases per 1,000 population	Number of cities	Deaths per 1,000 population
Chicken pox:				
1922.....	68	1.69	68	0.001
1923.....	77	2.02	77	.001
1924.....	82	2.45	82	.001
1925.....	69	1.89	69	.001
1926.....	68	2.24	68	.001
1927.....	73	2.46	73	.001
Diphtheria:				
1922.....	73	2.25	73	.155
1923.....	77	1.97	77	.132
1924.....	82	1.67	83	.111
1925.....	69	1.39	69	.100
1926.....	70	1.33	70	.097
1927.....	76	1.63	76	.108
Influenza:				
1922.....	70	.....	70	.161
1923.....	77	.....	77	.207
1924.....	80	.....	80	.098
1925.....	66	.....	66	.151
1926.....	66	.....	66	.236
1927.....	75	.....	75	.135
Lethargic encephalitis:				
1924.....	.....	.....	68	.022
1925.....	.....	.....	58	.022
1926.....	.....	.....	59	.020
1927.....	.....	.....	65	.017

	Cases		Deaths	
	Number of cities	Cases per 1,000 population	Number of cities	Deaths per 1,000 population
Measles:				
1922	72	5.26	72	0.080
1923	77	7.11	77	.076
1924	80	4.36	83	.048
1925	69	3.32	69	.032
1926	70	7.92	70	.082
1927	72	3.07	72	.020
Mumps:				
1922	66	.72	66	.0005
1923	69	.75	69	.0005
1924	75	1.66	76	.0006
1925	66	.67	66	.0006
1926	63	.76	63	.0009
1927	69	1.60	69	.0005
Pneumonia (all forms):				
1922			74	1.359
1923			75	1.514
1924			83	1.347
1925			68	1.327
1926			69	1.450
1927			77	1.093
Polio-myelitis:				
1924	66	.07	72	.010
1925	63	.05	63	.013
1926	62	.03	62	.006
1927	75	.09	77	.014
Scarlet fever:				
1922	73	1.80	73	.033
1923	77	2.07	77	.035
1924	82	2.15	82	.027
1925	68	2.26	68	.026
1926	70	2.13	70	.024
1927	76	2.37	76	.021
Smallpox:				
1922	75	.17	75	.0110
1923	78	.18	78	.0014
1924	83	.50	83	.0164
1925	69	.25	69	.0139
1926	70	.16	70	.0009
1927	76	.14	76	.0003
Tuberculosis (all forms):				
1922			72	1.010
1923			77	.981
1924			82	.962
1925			69	.926
1926			69	.900
1927			75	.829
Tuberculosis (respiratory system):				
1922			64	.870
1923			67	.846
1924			70	.821
1925			60	.790
1926			61	.779
1927			70	.722
Typhoid fever:				
1922	73	.19	73	.033
1923	77	.19	77	.033
1924	81	.22	83	.034
1925	68	.21	69	.035
1926	69	.16	69	.028
1927	74	.14	76	.020
Whooping cough:				
1923	76	1.67	76	.064
1924	77	1.56	81	.054
1925	65	1.68	68	.056
1926	67	1.92	67	.064
1927	72	1.43	77	.038

Reported Prevalence for the Year 1927

ANTHRAX

City	Cases reported, 1927	Deaths registered, 1927	City	Cases reported, 1927	Deaths registered, 1927
California:			New York:		
Los Angeles.....	1	0	New York.....	4	2
Louisiana:			Rochester.....	1	0
New Orleans.....	1	0	Yonkers.....	5	1
Massachusetts:			Pennsylvania:		
Lowell.....	1	0	Philadelphia.....	8	2
Lynn.....	2	0	Texas:		
Michigan:			Houston.....	1	0
Detroit.....	1	0	Utah:		
Missouri:			Salt Lake City.....		1
St. Louis.....	1	1			
New Jersey:					
Camden.....	2	0			
Paterson.....	1	0			

CHICKEN POX

City	Estimated population, July 1, 1927	Average, 1922-1926	1927				
			Cases reported	Cases per 1,000 inhabitants	Deaths registered	Deaths per 1,000 inhabitants	Cases reported for each death registered
Alabama:							
Birmingham.....	218,000	316	308	1.41	0		
California:							
Long Beach.....	104,000	315	671	6.45	0		
Los Angeles.....	1,960	1,716	1,716		0		
Oakland.....	267,000	595	1,807	6.77	0		
San Diego.....	115,000	400	1,079	9.38	0		
San Francisco.....	576,000	1,331	1,773	3.08	1	0.00	1,773.0
Colorado:							
Denver.....	290,000	972	882	3.04	0		
Connecticut:							
Bridgeport.....		110	56		0		
Hartford.....	168,000	222	192	1.14	0		
New Haven.....	185,000	489	590	3.19	0		
Waterbury.....		62	66		0		
Delaware:							
Wilmington.....	126,000	148	92	.73	0		
District of Columbia:							
Washington.....	540,000	1,176	1,487	2.75	0		
Florida:							
Miami.....	140,000	153	338	2.41	0		
Tampa.....	108,000	37	106	.98	0		
Georgia:							
Atlanta.....	249,000	115	156	.63	0		
Illinois:							
Chicago.....	3,103,000	4,557	4,155	1.34	7	.00	503.6
Indiana:							
Fort Wayne.....	103,000	259	146	1.42	0		
Indianapolis.....	374,000	1,132	1,497	4.00	0		
Kansas:							
Kansas City.....	118,000	287	260	2.20	0		
Louisiana:							
New Orleans.....	424,000	121	43	.10	0		
Maryland:							
Baltimore.....	819,000	2,921	3,451	4.21	3	.00	1,150.3
Massachusetts:							
Boston.....	793,000	1,746	2,787	3.51	1	.00	2,787.0
Cambridge.....	124,000	506	604	4.87	0		
Fall River.....	133,000	111	163	1.23	0		
Lowell.....	110,000	82	75	.68	0		
Lynn.....	105,000	83	123	1.17	0		
Somerville.....	102,000	120	105	1.03	0		
Springfield.....	147,000	252	339	2.31	0		
Worcester.....	196,000	372	737	3.76	0		
Michigan:							
Detroit.....	1,335,000	2,405	3,209	2.40	5	.00	641.8
Flint.....	143,000	392	690	4.83	0		
Grand Rapids.....	162,000	282	247	1.52	0		

* 4 years only.

* 3 years only.

* State census, 1925.

CHICKEN POX—Continued

City	Estimated population, July 1, 1927	Average, 1922-1926	1927				
			Cases reported	Cases per 1,000 inhabi- tants	Deaths regis- tered	Deaths per 1,000 inhabi- tants	Cases reported- for each death regis- tered
Minnesota:							
Duluth.....	115,000	1 362	282	2.45	0		
Minneapolis.....	448,000	2 791	3,842	8.58	1	0.00	3,842.0
St. Paul.....	250,000	1,100	1,413	5.65	0		
Missouri:							
Kansas City.....	383,000	550	1,185	3.09	0		
St. Louis.....	839,000	1,114	974	1.16	0		
Nebraska:							
Omaha.....	219,000	299	378	1.73	1	.00	378.0
New Jersey:							
Camden.....	133,000	209	325	2.44	0		
Elizabeth.....		260	345		0		
Jersey City.....	322,000	193	254	4.79	1	.00	254.0
Newark.....	467,000	1,503	2,312	.95	2	.00	1,150.0
Paterson.....	144,000	354	367	2.55	0		
Trenton.....	137,000	123	* 81	* .59	0		
New York:							
Albany.....	120,000	425	562	4.68	0		
Buffalo.....	550,000	915	1,261	2.29	1	.00	1,261.0
New York.....	5,971,000	7,394	9,444	1.58	8	.00	1,180.5
Rochester.....	325,000	394	333	1.02	0		
Syracuse.....	197,000	517	854	4.34	1	.01	854.0
Utica.....	103,000	241	289	2.81	0		
Yonkers.....	119,000	201	352	2.96	0		
Ohio:							
Akron.....		315	305		0		
Canton.....	113,000	363	267	2.36	0		
Cincinnati.....	412,000	482	575	1.40	0		
Cleveland.....	973,000	2,570	3,672	3.77	0		
Columbus.....	291,000	1,349	555	1.91	1	.00	555.0
Dayton.....	181,000	129	160	.88	0		
Toledo.....	305,000	1,263	2,263	7.42	1	.00	2,263.0
Youngstown.....	169,000	340	398	2.36	0		
Oklahoma:							
Oklahoma City.....		106	90		0		
Oregon:							
Portland.....		555	583		0		
Pennsylvania:							
Erie.....		472	347		0		
Philadelphia.....	2,036,000	4,150	4,388	2.16	3	.00	1,462.7
Pittsburgh.....	666,000	2,050	2,077	3.12	0		
Reading.....	115,000	408	437	3.80	0		
Scranton.....	144,000	115	257	1.78	0		
Rhode Island:							
Providence.....	281,000	117	337	1.20	3	.01	112.3
Tennessee:							
Knoxville.....	102,000	54	55	.54	1	.01	55.0
Memphis.....	179,000	500	590	3.30	0		
Nashville.....	138,000	74	176	1.28	0		
Texas:							
Dallas.....	212,000	538	303	1.43	0		
El Paso.....	114,000	1 246	526	4.61	0		
Forth Worth.....	164,000	1 111	358	2.18	0		
Houston.....		1 47	135		0		
San Antonio.....	211,000	21	39	.18	0		
Utah:							
Salt Lake City.....	136,000	1,060	1,072	7.88	0		
Virginia:							
Norfolk.....	179,000	330	623	3.48	0		
Richmond.....	192,000	201	110	.57	0		
Washington:							
Seattle.....	375,000	1,242	1,268	3.46	1	.00	1,298.0
Spokane.....	109,000	622	603	5.53	0		
Tacoma.....	107,000	206	467	4.36	0		
Wisconsin:							
Milwaukee.....	536,000	2,388			1	.00	
Total:							
73 cities.....	30,123,000	58,021	74,226	2.464	42	.001	1767.3
82 cities.....		61,908	77,869		42		1854.0

14 years only.

* Includes nonresidents.

DENGUE

City	Cases reported, 1927	Deaths registered, 1927
Texas: Dallas.....	3	0

DIPHTHERIA

City	Estimated population, July 1, 1927	Estimated expectancy		1927				
		Number of years	Cases	Cases reported	Cases per 1,000 inhabitants	Deaths registered	Deaths per 1,000 inhabitants	Fatalities per 100 cases
Alabama:								
Birmingham.....	218,000	7	190	413	1.89	16	0.07	3.9
California:								
Long Beach.....	104,000	7	138	84	.81	5	.05	6.0
Los Angeles.....		7	2,666	1,730		84		4.9
Oakland.....	267,000	7	534	518	1.94	27	.10	5.2
San Diego.....	115,000	7	219	154	1.34	11	.10	7.1
San Francisco.....	576,000	7	1,272	572	.99	21	.04	3.7
Colorado:								
Denver.....	290,000	7	734	452	1.56	23	.08	5.1
Connecticut:								
Bridgeport.....		7	356	259		26		10.0
Hartford.....	168,000	7	374	158	.94	7	.04	4.4
New Haven.....	185,000	7	109	53	.29	3	.02	5.7
Waterbury.....		7	171	68		1		1.5
Delaware:								
Wilmington.....	126,000	7	168	94	.75	6	.05	6.4
District of Columbia:								
Washington.....	540,000	7	713	927	1.72	24	.04	2.6
Florida:								
Miami.....	140,000	6	36	97	.69	6	.04	6.2
Tampa.....	108,000	5	51	110	1.02	2	.02	1.8
Georgia:								
Atlanta.....	249,000	7	223	290	1.16	22	.09	7.6
Illinois:								
Chicago.....	3,103,000	7	5,836	4,123	1.33	442	.14	10.7
Indiana:								
Fort Wayne.....	103,000	7	207	178	1.73	5	.05	2.8
Indianapolis.....	374,000	7	476	377	1.01	29	.08	7.7
Iowa:								
Des Moines.....	149,000	6	187	64	.43	6	.04	9.4
Kansas:								
Kansas City.....	118,000	7	133	74	.63	8	.07	10.8
Louisiana:								
New Orleans.....	424,000	7	433	606	1.43	70	.17	11.6
Maryland:								
Baltimore.....	819,000	7	1,318	1,619	1.98	93	.11	5.7
Massachusetts:								
Boston.....	793,000	7	2,521	1,369	1.73	60	.08	4.4
Cambridge.....	124,000	7	220	151	1.22	0		
Fall River.....	133,000	7	223	141	1.06	19	.14	13.5
Lowell.....	110,000	7	120	194	1.76	18	.16	9.3
Lynn.....	105,000	7	151	131	1.25	20	.19	15.3
New Bedford.....	120,000	7	129	313	2.61	19	.16	6.1
Somerville.....	102,000	7	177	105	1.04	5	.05	4.7
Springfield.....	147,000	7	164	260	1.77	18	.12	6.9
Worcester.....	196,000	7	282	223	1.14	11	.06	4.9
Michigan:								
Detroit.....	1,335,000	7	2,779	2,458	1.84	278	.21	11.3
Flint.....	143,000	7	492	175	1.22	10	.07	5.7
Grand Rapids.....	162,000	7	307	25	.15	3	.02	12.0
Minnesota:								
Duluth.....	115,000	7	143	30	.26	3	.03	10.0
Minneapolis.....	448,000		1,332	894	2.00	28	.06	3.1
St. Paul.....	250,000	7	822	221	.88	5	.02	2.3
Missouri:								
Kansas City.....	383,000	7	516	212	.55	11	.03	5.2
St. Louis.....	839,000	7	2,131	1,592	1.90	72	.09	4.5
Nebraska:								
Omaha.....	219,000	6	446	132	.60	11	.05	8.3

¹ State census, 1925.

DIPHTHERIA—Continued

City	Estimated population, July 1, 1927	Estimated expectancy		1927				
		Number of years	Cases	Cases reported	Cases per 1,000 inhabitants	Deaths registered	Deaths per 1,000 inhabitants	Fatalities per 100 cases
New Jersey:								
Camden	133,000	7	307	594	4.47	34	0.26	5.7
Elizabeth		7	409	295		12		4.1
Jersey City	322,000	7	829	767	2.38	36	.11	4.7
Newark	467,000	7	634	696	1.49	62	.13	8.9
Paterson	144,000	7	265	236	1.64	13	.09	5.5
Trenton	137,000	7	247	182	1.60	15	.04	6.1
New York:								
Albany	120,000	7	212	112	.93	13	.11	11.6
Buffalo	550,000	7	686	737	1.34	58	.11	7.9
New York	5,971,000	7	9,687	13,507	2.26	717	.12	5.3
Rochester	325,000	7	510	496	1.53	21	.06	4.2
Syracuse	197,000	7	454	70	.36	3	.02	4.3
Utica	103,000	7	347	295	2.86	19	.18	6.4
Yonkers	119,000	7	227	438	3.68	23	.19	5.3
Ohio:								
Akron		7	294	188		11		5.9
Canton	113,000	7	213	37	.33	1	.01	2.7
Cincinnati	412,000	7	575	439	1.07	24	.06	5.5
Cleveland	973,000	7	1,746	2,872	2.95	188	.19	6.5
Columbus	291,000	7	348	363	1.25	20	.07	5.5
Dayton	181,000	7	211	121	.67	12	.07	9.9
Toledo	305,000	7	728	197	.65	25	.08	12.7
Youngstown	169,000	7	184	116	.69	23	.14	19.8
Oklahoma:								
Oklahoma City		6	88	218		16		7.3
Tulsa	150,000					15	.10	
Oregon:								
Portland		7	604	287		12		4.2
Pennsylvania:								
Erie		7	196	182		11		6.0
Philadelphia	2,036,000	7	3,368	2,607	1.28	220	.11	8.4
Pittsburgh	666,000	7	1,321	1,625	2.44	111	.17	6.8
Reading	115,000	7	163	95	.83	10	.09	10.5
Scranton	144,000	7	156	352	2.44	26	.18	7.4
Rhode Island:								
Providence	281,000	7	461	372	1.32	23	.08	6.2
Tennessee:								
Knoxville	102,000	7	69	44	.43	3	.03	6.8
Memphis	179,000	7	281	137	.77	14	.08	10.2
Nashville	138,000	7	81	103	.75	17	.12	16.5
Texas:								
Dallas	212,000	7	338	641	3.02	31	.15	4.8
El Paso	114,000	5	58	43	.38	2	.02	4.7
Fort Worth	164,000	7	139	401	2.45	25	.15	6.2
Houston		7	245	344		21		6.1
San Antonio	211,000	6	150	328	1.55	29	.14	8.8
Utah:								
Salt Lake City	136,000	7	166	297	2.18	19	.14	6.4
Virginia:								
Norfolk	179,000	7	101	81	.45	5	.03	6.2
Richmond	192,000	7	438	327	1.70	11	.06	3.4
Washington:								
Seattle	375,000	7	296	156	.42	4	.01	2.6
Spokane	109,000	7	234	50	.46	1	.01	2.0
Tacoma	107,000	7	160	120	1.12	5	.05	4.2
Wisconsin:								
Milwaukee	536,000	7	884	757	1.41	56	.10	7.4
Total:								
76 cities	30,928,000		53,580	50,301	1.626	3,326	.108	6.6
85 cities			58,609	53,872		3,520		6.5

* Includes nonresidents.

INFLUENZA

City	Estimated population, July 1, 1927	Cases reported, 1927	Cases per 1,000 inhabitants	Deaths registered, 1927	Deaths per 1,000 inhabitants	Cases reported for each death registered
Alabama:						
Birmingham.....	218,000	428	1.96	122	0.56	3.5
California:						
Long Beach.....	104,000	15	.14	10	.10	1.5
Los Angeles.....		746		69		10.8
Oakland.....	267,000	45	.17	23	.09	2.0
San Diego.....	115,000	53	.46	25	.22	2.1
San Francisco.....	576,000	140	.24	63	.11	2.2
Colorado:						
Denver.....	290,000			113	.39	
Connecticut:						1.3
Bridgeport.....		34		26		
Hartford.....	168,000	19	.11	15	.09	1.3
New Haven.....	185,000			8	.04	
Waterbury.....		15		14		1.1
Delaware:						
Wilmington.....	126,000			15	.12	
District of Columbia:						
Washington.....	540,000	153	.28	94	.17	1.6
Florida:						
Miami.....	140,000	38	.27	21	.15	1.8
Tampa.....	108,000	16	.15	10	.09	1.6
Georgia:						
Atlanta.....	249,000	1,504	6.04	108	.43	13.9
Illinois:						
Chicago.....	3,103,000	716	.23	240	.08	3.0
Indiana:						
Fort Wayne.....	103,000			6	.06	
Indianapolis.....	374,000			73	.20	
Iowa:						
Des Moines.....	149,000			29	.19	
Kansas:						
Kansas City.....	118,000			11	.09	
Louisiana:						
New Orleans.....	424,000	298	.70	216	.51	1.4
Maryland:						
Baltimore.....	819,000	1,590	1.94	167	.20	9.5
Massachusetts:						
Boston.....	793,000	186	.23	37	.05	5.0
Cambridge.....	124,000	41	.33	8	.06	5.1
Fall River.....	133,000	26	.20	15	.11	1.7
Lowell.....	110,000	6	.05	2	.02	3.0
Lynn.....	105,000	9	.09	0		
New Bedford.....	120,000			5	.04	
Somerville.....	102,000	15	.15	6	.06	2.5
Springfield.....	147,000	18	.12	17	.12	1.1
Worcester.....	196,000	14	.07	6	.03	2.3
Michigan:						
Detroit.....	1,335,000	161	.12	134	.10	1.2
Flint.....	143,000			16	.11	
Grand Rapids.....	162,000			22	.14	
Minnesota:						
Duluth.....	115,000			8	.07	
Minneapolis.....	448,000			59	.13	
St. Paul.....	250,000			40	.16	
Missouri:						
Kansas City.....	383,000			68	.18	
St. Louis.....	839,000			31	.04	
New Jersey:						
Camden.....	133,000	27	.20	23	.17	1.2
Elizabeth.....				6		
Jersey City.....	322,000			31	.10	
Newark.....	467,000	286	.61	23	.05	12.4
Paterson.....	144,000	61	.42	7	.05	8.7
Trenton.....	137,000			30	.22	
New York:						
Albany.....	120,000			12	.10	
Buffalo.....	550,000			37	.07	
New York.....	5,971,000	2,048	.34	630	.11	3.3
Rochester.....	325,000			19	.06	
Syracuse.....	197,000			4	.02	
Yonkers.....	119,000			6	.05	
Ohio:						
Akron.....				13		
Canton.....	113,000			12	.11	
Cincinnati.....	412,000			93	.23	
Cleveland.....	973,000	185	.19	57	.06	3.2
Columbus.....	291,000			51	.18	

¹ State census, 1925.² Includes 5 nonresidents.³ Includes nonresidents.

INFLUENZA—Continued

City	Estimated population, July 1, 1927	Cases reported, 1927	Cases per 1,000 inhabitants	Deaths registered, 1927	Deaths per 1,000 inhabitants	Cases reported for each death registered
Ohio—Continued.						
Dayton	181,000			32	0.18	
Toledo	305,000	69	0.23	59	.19	1.2
Youngstown	169,000			19	.11	
Oklahoma:						
Oklahoma City				15		
Tulsa	150,000			14	.09	
Oregon:						
Portland		306		50		6.1
Pennsylvania:						
Erie				28		
Philadelphia	2,036,000			353	.17	
Pittsburgh	666,000			141	.21	
Reading	115,000			15	.13	
Scranton	144,000			10	.07	
Rhode Island:						
Providence	281,000			25	.09	
Tennessee:						
Knoxville	102,000	864	8.47	55	.54	15.7
Memphis	179,000			86	.48	
Nashville	138,000			33	.24	
Texas:						
Dallas	212,000	110	.52	56	.26	2.0
El Paso	114,000			37	.32	
Fort Worth	164,000			26	.16	
Houston				15		
San Antonio	211,000			60	.28	
Utah:						
Salt Lake City	136,000	16	.12	13	.10	1.2
Virginia:						
Norfolk	179,000	7	.04	3	.02	2.3
Richmond	192,000			46	.24	
Washington:						
Seattle	375,000			83	.22	
Spokane	109,000			50	.46	
Tacoma	107,000			22	.21	
Wisconsin:						
Milwaukee	536,000			45	.08	
Total:						
32 cities	18,498,000	9,164	.495	2,265	.122	4.0
75 cities	30,756,000			4,161	.135	
36 cities		10,265				
84 cities				4,397		

LETHARGIC ENCEPHALITIS

City	Estimated population, July 1, 1927	Cases reported, 1927	Cases per 1,000 inhabitants	Deaths registered, 1927	Deaths per 1,000 inhabitants	Cases reported for each death registered
Alabama:						
Birmingham	218,000	1	0.00	1	0.00	1.0
California:						
Long Beach	104,000			3	.03	
Los Angeles		11		8		1.4
Oakland	267,000	4	.01	1	.00	4.0
San Diego	115,000			1	.01	
San Francisco	576,000			15	.03	
Colorado:						
Denver	290,000			4	.01	
Connecticut:						
Bridgeport		6		3		2.0
Hartford	168,000	5	.03	1	.01	5.0
New Haven	185,000	2	.01	2	.01	1.0
Waterbury		1		1		
Delaware:						
Wilmington	126,000	1	.01	1	.01	1.0
District of Columbia:						
Washington	540,000	10	.02	8	.01	1.2
Florida:						
Miami	140,000	2	.01	2	.01	1.0
Georgia:						
Atlanta	249,000			3	.01	
Illinois:						
Chicago	3,103,000	49	.02	12	.00	4.1
Indiana:						
Indianapolis	374,000			6	.02	

LETHARGIC ENCEPHALITIS—Continued

City	Estimated population, July 1, 1927	Cases reported, 1927	Cases per 1,000 inhabitants	Deaths registered, 1927	Deaths per 1,000 inhabitants	Cases reported for each death registered
Kansas:						
Kansas City.....	118,000	3	.03	3	.03	1.0
Louisiana:						
New Orleans.....	424,000	16	.04	5	.01	3.2
Maryland:						
Baltimore.....	819,000	—	—	25	.03	—
Massachusetts:						
Boston.....	793,000	25	.03	12	.02	2.1
Cambridge.....	124,000	2	.02	1	.01	2.0
Fall River.....	133,000	—	—	5	.04	—
Lynn.....	105,000	5	.05	4	.04	1.2
New Bedford.....	120,000	2	.02	1	.01	2.0
Somerville.....	102,000	4	.04	1	.01	4.0
Springfield.....	147,000	1	.01	1	.01	1.0
Worcester.....	196,000	4	.02	2	.01	2.0
Michigan:						
Detroit.....	1,335,000	38	.03	16	.01	2.4
Grand Rapids.....	162,000	—	—	1	.01	—
Minnesota:						
Duluth.....	115,000	—	—	2	.02	—
Minneapolis.....	448,000	—	—	14	.03	—
St. Paul.....	250,000	—	—	6	.02	—
Missouri:						
Kansas City.....	383,000	—	—	12	.03	—
St. Louis.....	839,000	—	—	16	.02	—
Nebraska:						
Omaha.....	219,000	3	.01	3	.01	1.0
New Jersey:						
Camden.....	133,000	—	—	3	.02	—
Elizabeth.....	—	—	—	5	—	—
Jersey City.....	322,000	4	.01	3	.01	1.3
Newark.....	467,000	20	.04	7	.01	2.9
Trenton.....	137,000	—	—	13	.02	—
New York:						
Albany.....	120,000	4	.03	3	.02	1.3
Buffalo.....	550,000	4	.01	4	.01	1.0
New York.....	5,971,000	232	.04	161	.03	1.4
Rochester.....	325,000	2	.01	2	.01	1.0
Syracuse.....	197,000	1	.01	0	—	—
Yonkers.....	119,000	2	.02	0	—	—
Ohio:						
Canton.....	113,000	—	—	1	.01	—
Cincinnati.....	412,000	—	—	5	.01	—
Cleveland.....	973,000	16	.02	10	.01	1.6
Columbus.....	291,000	26	.09	26	.09	1.0
Toledo.....	305,000	—	—	3	.01	—
Youngstown.....	169,000	—	—	2	.01	—
Oklahoma:						
Oklahoma City.....	—	—	—	16	—	—
Tulsa.....	150,000	—	—	1	.01	—
Oregon:						
Portland.....	—	—	—	13	—	—
Pennsylvania:						
Erie.....	—	2	—	2	—	1.0
Philadelphia.....	2,036,000	20	.01	17	.01	1.2
Pittsburgh.....	666,000	12	.02	3	.00	4.0
Scranton.....	144,000	4	.03	3	.02	1.3
Rhode Island:						
Providence.....	281,000	3	.01	2	.01	1.5
Tennessee:						
Memphis.....	179,000	—	—	6	.03	—
Nashville.....	138,000	4	.03	4	.03	1.0
Texas:						
Dallas.....	212,000	5	.02	5	.02	1.0
El Paso.....	114,000	—	—	1	.01	—
San Antonio.....	211,000	—	—	1	.00	—
Utah:						
Salt Lake City.....	136,000	—	—	2	.01	—
Virginia:						
Norfolk.....	179,000	—	—	4	.02	—
Richmond.....	192,000	—	—	3	.02	—
Washington:						
Seattle.....	375,000	—	—	11	.03	—
Spokane.....	109,000	19	.17	19	.17	1.0
Wisconsin:						
Milwaukee.....	536,000	8	.01	3	.01	2.7
Total:						
37 cities.....	21,887,000	563	.026	349	.016	1.6
65 cities.....	29,549,000	—	—	508	.017	—
41 cities.....	—	583	—	—	—	—
72 cities.....	—	—	—	556	—	—

¹ State census, 1923.² Includes nonresidents.

MALARIA

City	Estimated population, July 1, 1927	Cases reported, 1927	Cases per 1,000 inhab- itants	Deaths regis- tered, 1927	Deaths per 1,000 inhab- itants	Cases reported for each death registered
Alabama:						
Birmingham	218,000	53	0.24	4	0.02	13.2
California:						
Long Beach	104,000	1	.01	0		
Los Angeles		10		2		5.0
Oakland	267,000	1	.00	0		
San Diego	115,000	1	.01	0		
San Francisco	576,000			2	.00	
Florida:						
Miami	140,000	19	.14	0		
Tampa	108,000	10	.09	3	.03	3.3
Georgia:						
Atlanta	249,000	94	.38	5	.02	18.8
Illinois:						
Chicago	3,103,000	19	.01	3	.00	6.3
Indiana:						
Indianapolis	374,000			1	.00	
Kansas:						
Kansas City	118,000	1	.01	0		
Louisiana:						
New Orleans	424,000	173	.41	4	.01	43.2
Maryland:						
Baltimore	819,000	15	.02	1	.00	15.0
Massachusetts:						
Boston	793,000	4	.01	0		
Fall River	133,000	2	.02	0		
Lowell	110,000	1	.01	0		
Michigan:						
Detroit	1,335,000	20	.01	2	.00	10.0
Minnesota:						
Minneapolis	448,000			1	.00	
Missouri:						
Kansas City	383,000			2	.01	
St. Louis	839,000			4	.00	
New Jersey:						
Newark	467,000	3	.01	0		
Paterson	144,000			1	.01	
New York:						
New York	5,971,000	86	.01	1	.00	86.0
Ohio:						
Akron		1		0		
Cleveland	973,000	13	.01	0		
Oklahoma:						
Oklahoma City		5		2		2.5
Pennsylvania:						
Philadelphia	2,036,000			2	.00	
Pittsburgh	666,000	1	.00	0		
Tennessee:						
Knoxville	102,000	5	.05	1	.01	5.0
Memphis	179,000	516	2.88	17	.09	30.4
Nashville	138,000	11	.08	0		
Texas:						
Dallas	212,000	28	.13	8	.04	3.5
El Paso	114,000			1	.01	
Fort Worth	164,000	10	.06	3	.02	3.3
Houston				8		
Virginia:						
Norfolk	179,000	1	.01	0		
Total:						
25 cities	17,087,000	1,088	.064	52	.003	20.9
33 cities	22,001,000			66	.003	
28 cities		1,104				
37 cities				78		

1 State census, 1925.

MEASLES

City	Estimated population, July 1, 1927	Estimated expectancy		1927				
		Number of years	Cases	Cases reported	Cases per 1,000 inhabitants	Deaths registered	Deaths per 1,000 inhabitants	Fatalities per 100 cases
Alabama:								
Birmingham.....	218,000	7	373	821	3.77	3	0.01	0.4
California:								
Long Beach.....	104,000			1,911	18.38	2	.02	.1
Los Angeles.....		6	1,724	10,963		43		.4
Oakland.....	267,000			2,376	8.90	7	.03	.3
San Diego.....	115,000	6	359	5,125	44.57	13	.11	.3
San Francisco.....	576,000	7	1,892	2,859	4.96	9	.02	.3
Colorado:								
Denver.....	290,000	5	888	7,680	26.48	39	.13	.5
Connecticut:								
Bridgeport.....		7	409	166		0		
Hartford.....	168,000	7	573	49	.29	1	.01	2.0
New Haven.....	185,000	7	957	364	1.97	0		
Waterbury.....		7	174	33		1		3.0
Delaware:								
Wilmington.....	126,000	7	492	20	.16	0		
District of Columbia:								
Washington.....	540,000	7	794	164	.30	0		
Florida:								
Miami.....	140,000	6	171	69	.49	1	.01	1.4
Tampa.....	108,000	5	112	1,346	12.46	2	.02	.1
Georgia:								
Atlanta.....	249,000	7	486	1,584	6.28	14	.06	.9
Illinois:								
Chicago.....	3,103,000	7	9,025	17,726	5.71	123	.04	.7
Indiana:								
Fort Wayne.....	103,000	7	403	660	6.41	0		
Indianapolis.....	374,000	7	1,521	326	.87	4	.01	1.2
Iowa:								
Des Moines.....	149,000	6	52			15	.10	
Kansas:								
Kansas City.....	118,000	7	755	366	3.10	0		
Louisiana:								
New Orleans.....	424,000	7	411	1,425	3.36	95	.22	6.7
Maryland:								
Baltimore.....	819,000	5	4,256	661	.81	6	.01	.9
Massachusetts:								
Boston.....	793,000	7	5,023	4,433	5.59	40	.05	.9
Cambridge.....	124,000	7	911	504	4.06	4	.03	.8
Fall River.....	133,000	7	537	98	.74	1	.01	1.0
Lowell.....	¹ 110,000	4	318	16	.15	0		
Lynn.....	105,000	6	512	81	.77	0		
New Bedford.....	¹ 120,000	6	566	18	.15	0		
Somerville.....	102,000	7	552	190	1.86	0		
Springfield.....	147,000	4	352	57	.39	1	.01	1.8
Worcester.....	196,000	5	230	75	.38	0		
Michigan:								
Detroit.....	1,335,000	5	3,115	1,083	.81	18	.01	1.7
Flint.....	143,000	7	337	272	1.90	1	.01	.4
Grand Rapids.....	162,000	4	320	492	3.04	1	.01	.2
Minnesota:								
Duluth.....	115,000	7	175	780	6.78	2	.02	.3
Minneapolis.....	448,000	6	884	237	.53	3	.01	1.3
St. Paul.....	250,000	7	764	433	1.73	5	.02	1.2
Missouri:								
Kansas City.....	383,000	7	1,278	1,350	3.52	19	.05	1.4
St. Louis.....	839,000	7	1,185	878	1.05	5	.01	.6
Nebraska:								
Omaha.....	219,000	7	611	1,501	6.85	2	.01	.1

¹ State census, 1925.

MEASLES—Continued

City	Estimated population, July 1, 1927	Estimated expectancy		1927				
		Number of years	Cases	Cases reported	Cases per 1,000 inhabitants	Deaths registered	Deaths per 1,000 inhabitants	Fatalities per 100 cases
New Jersey:								
Camden.....	133,000	7	448	46	0.35	1	0.01	2.2
Elizabeth.....		7	598	42		1		
Jersey City.....	322,000	7	976	39	.12	1	.00	2.6
Newark.....	467,000	5	3,956	413	.88	3	.01	.7
Paterson.....	144,000	5	902	32	.22	0		
Trenton.....	137,000	7	300	54	.39	1	.01	1.9
New York:								
Albany.....	120,000	7	569	1,373	11.44	6	.05	.4
Buffalo.....	550,000	7	1,463	923	1.68	2	.00	.2
New York.....	5,971,000	5	13,999	2,101	.35	37	.01	1.8
Rochester.....	325,000	7	1,751	318	.98	0		
Syracuse.....	197,000	7	1,446	3,177	16.13	14	.07	.4
Utica.....	103,000	7	760	809	7.85	8	.08	1.0
Yonkers.....	119,000	7	583	29	.24	0		
Ohio:								
Akron.....		7	939	115		0		
Canton.....	113,000	7	327	612	5.42	1	.01	.2
Cincinnati.....	412,000	7	2,198	299	.73	1	.00	.3
Cleveland.....	973,000	7	3,573	295	.30	1	.00	.3
Columbus.....	291,000	7	1,044	83	.29	0		
Dayton.....	181,000	7	113	36	.20	1	.01	2.8
Toledo.....	305,000	7	3,178	874	2.87	1	.00	.1
Youngstown.....	169,000	7	817	291	1.72	1	.01	.3
Oklahoma:								
Oklahoma City.....		6	70	326		3		.9
Tulsa.....	150,000					8	.05	
Oregon:								
Portland.....		5	983	2,041		5		.2
Pennsylvania:								
Erie.....		7	869	54		0		
Philadelphia.....	2,036,000	5	7,939	976	.48	3	.00	.3
Pittsburgh.....	666,000	5	4,836	4,485	6.73	33	.05	.7
Reading.....	115,000	7	479	962	8.37	2	.02	.2
Scranton.....	144,000	7	264	37	.26	1	.01	2.7
Rhode Island:								
Providence.....	281,000	7	1,928	60	.21	0		
Tennessee:								
Knoxville.....	102,000			892	8.75	10	.10	1.1
Memphis.....	179,000	7	894	949	5.30	6	.03	.6
Nashville.....	138,000	7	250	23	.17	0		
Texas:								
Dallas.....	212,000	5	405	1,706	8.05	13	.06	.8
El Paso.....	114,000	5	543	675	5.92	6	.05	.9
Fort Worth.....	164,000	6	18	898	5.48	2	.01	.2
Houston.....		6	27	66		0		
San Antonio.....	211,000	7	36	142	.67	1	.00	.7
Utah:								
Salt Lake City.....	136,000	7	1,939	1,994	14.66	8	.06	.4
Virginia:								
Norfolk.....	179,000	7	327	2,435	13.60	2	.01	.1
Richmond.....	192,000	7	1,444	3,225	16.80	4	.02	.1
Washington:								
Seattle.....	375,000	7	930	3,237	8.63	8	.02	.2
Spokane.....	106,000	7	1,245	1,179	10.82	3	.03	.3
Tacoma.....	107,000	7	123	1,065	10.23	3	.03	.3
Wisconsin:								
Milwaukee.....	536,000	7	4,819	3,282	6.12	8	.01	.2
Total:								
72 cities.....	30,306,000		107,960	92,887	3.065	594	.020	.6
81 cities.....			113,753	107,293		647		.6

* Includes nonresidents.

MENINGOCOCCUS MENINGITIS

City	Estimated population, July 1, 1927	Estimated expectancy		1927				
		Number of years	Cases	Cases reported	Cases per 1,000 inhabitants	Deaths registered	Deaths per 1,000 inhabitants	Fatalities per 100 cases
Alabama:								
Birmingham	218,000	7	6	4	0.02	4	0.02	100.0
California:								
Long Beach	104,000	7	25	3	.03	0		
Los Angeles	267,000	5	7	49		22	.04	44.9
Oakland	115,000	6	4	11	.10	4	.03	36.4
San Diego	576,000	7	24	19	.03	9	.02	47.4
San Francisco	290,000	5	1	30	.10	21	.07	70.0
Colorado:								
Denver	290,000	5	1	30	.10	21	.07	70.0
Connecticut:								
Bridgeport	168,000	7	8	5		4		80.0
Hartford	168,000	6	4	6	.04	4	.02	66.7
Waterbury		7	7	1		1		100.0
Delaware:								
Wilmington	126,000	6	3	1	.01	1	.01	100.0
District of Columbia:								
Washington	540,000	7	5	4	.01	3	.01	75.0
Florida:								
Miami	140,000	4	3	1	.01	1	.01	100.0
Tampa	108,000			3	.03	1	.01	33.3
Georgia:								
Atlanta	249,000	3	5	12	.05	8	.03	66.7
Illinois:								
Chicago	3,103,000	7	55	193	.06	94	.03	48.7
Indiana:								
Indianapolis	374,000	7	4	12	.03	5	.01	41.7
Iowa:								
Des Moines	149,000	4	1	2	.01	1	.01	50.0
Kansas:								
Kansas City	118,000	6	8	12	.10	5	.04	41.7
Maryland:								
Baltimore	819,000	7	24	13	.02	13	.02	100.0
Massachusetts:								
Boston	793,000	7	41	34	.04	29	.04	85.3
Cambridge	124,000	7	4	5	.04	1	.01	20.0
Fall River	133,000	6	7	4	.03	3	.02	75.0
Lowell	110,000	6	5	3	.03	1	.01	33.3
Lynn	105,000	7	6	4	.04	1	.01	25.0
Somerville	102,000	7	2	1	.01	1	.01	100.0
Springfield	147,000	4	4	2	.01	2	.01	100.0
Michigan:								
Detroit	1,335,000	5	45	50	.04	23	.02	46.0
Grand Rapids	162,000	6	0	1	.01	1	.01	100.0
Minnesota:								
Duluth	115,000	4	4	31	.27	13	.11	41.9
Minneapolis	448,000	5	5	47	.10	17	.04	36.2
St. Paul	250,000	7	3	7	.03	3	.01	42.9
Missouri:								
Kansas City	383,000	6	11	27	.07	13	.03	48.1
St. Louis	839,000	7	29	36	.04	9	.01	25.0
New Jersey:								
Elizabeth		4	4			4		
Jersey City	322,000	7	12	12	.04	2	.01	16.7
Newark	467,000	7	20	15	.03	8	.02	53.3
Paterson	144,000	5	8	4	.03	3	.02	75.0
New York:								
Buffalo	550,000	7	12	9	.02	2	.00	22.2
New York	5,971,000	7	170	177	.03	120	.02	67.8
Rochester	325,000					1	.00	
Syracuse	197,000	6	2	2	.01	1	.01	50.0
Yonkers	119,000	7	2	1	.01	0		
Ohio:								
Akron		5	3			1		
Canton	113,000	7	1	1	.01	1	.01	100.0
Cincinnati	412,000	4	7	12	.03	10	.02	83.3
Cleveland	973,000	6	21	23	.02	11	.01	47.8
Columbus	291,000	5	3	4	.01	2	.01	50.0
Dayton	181,000	5	0	13	.07	4	.02	30.8
Toledo	305,000	5	2	6	.02	4	.01	66.7
Youngstown	169,000	4	1	4	.02	2	.01	50.0
Oklahoma:								
Oklahoma City		6	0	1		1		100.0
Tulsa	150,000					6	.04	

¹ State census, 1925.² Includes 1 nonresident.

MENINGOCOCCUS MENINGITIS—Continued

City	Estimated population, July 1, 1927	Estimated expectancy		1927				
		Number of years	Cases	Cases reported	Cases per 1,000 inhabitants	Deaths registered	Deaths per 1,000 inhabitants	Fatalities per 100 cases
Oregon:								
Portland		6	6	54		15		27.8
Pennsylvania:								
Philadelphia	2,036,000	7	31	24	0.01	17	0.01	70.8
Pittsburgh	666,000	5	12	13	.02	8	.01	61.5
Rhode Island:								
Providence	281,000	7	6	8	.03	5	.02	62.5
Tennessee:								
Knoxville	102,000			2	.02	0		
Memphis	179,000	7	7	5	.03	4	.02	80.0
Nashville	138,000	7	5	5	.04	5	.04	100.0
Texas:								
Dallas	212,000	5	5	3	.01	3	.01	100.0
El Paso	114,000	4	1			1	.01	
Forth Worth	164,000	6	1	1	.01	0		
Houston		5	1	7		2		28.6
San Antonio	211,000	4	4			2	.01	
Utah:								
Salt Lake City	136,000	4	4	17	.12	9	.07	52.9
Virginia:								
Norfolk	179,000	7	3			6	.03	
Richmond	192,000	6	2	3	.02	2	.01	66.7
Washington:								
Seattle	375,000	4	9	35	.09	20	.05	57.1
Spokane	109,000	7	2	57	.52	33	.30	57.9
Tacoma	107,000	5	6	8	.07	7	.07	87.5
Wisconsin:								
Milwaukee	536,000			176	.33	81	.15	46.0
Total:								
54 cities	26,840,000		664	1,034	.039	573	.021	55.4
58 cities	27,690,000			1,218	.044	655	.024	53.8
64 cities	28,936,000					682	.024	
64 cities				1,335				
72 cities						732		

MUMPS

City	Estimated population, July 1, 1927	Average, 1922-1926	1927				
			Cases reported	Cases per 1,000 inhabitants	Deaths registered	Deaths per 1,000 inhabitants	Cases reported for each death registered
Alabama:							
Birmingham	218,000	192	113	0.52	0		
California:							
Long Beach	104,000	256	81	.78	0		
Los Angeles		308	540		2		270.0
Oakland	267,000	1,229	525	1.97	0		
San Diego	115,000	1,165	83	.72	0		
San Francisco	576,000	1,512	2,173	3.77	0		
Colorado:							
Denver	290,000	1,226	197	.68	0		
Connecticut:							
Bridgeport		33	68		0		
Hartford	168,000	101	142	.85	0		
New Haven	185,000	117	221	1.19	0		
Waterbury		16	94		0		
Delaware:							
Wilmington	126,000	117	10	.08	0		
Florida:							
Miami	140,000	14	175	1.25	0		
Tampa	108,000	119	11	.10	0		

¹4 years only.²3 years only.

MUMPS—Continued

City	Estimated population, July 1, 1927	Average, 1922-1926	1927				
			Cases reported	Cases per 1,000 inhabitants	Deaths registered	Deaths per 1,000 inhabitants	Cases reported for each death registered
Georgia:							
Atlanta	249,000	76	251	1.01	0		
Illinois:							
Chicago	3,103,000	1 880	3,771	1.22	2	0.00	1,885.5
Indiana:							
Indianapolis	374,000	1 281	1,039	2.78	0		
Iowa:							
Des Moines	149,000	1 2			2	.01	
Kansas:							
Kansas City	118,000	298	133	1.13	0		
Maryland:							
Baltimore	819,000	2 131	389	.47	0		
Massachusetts:							
Boston	793,000	1,059	2,365	2.98	0		
Cambridge	124,000	390	697	5.62	0		
Fall River	133,000	68	71	.53	0		
Lowell	110,000	45	234	2.13	1	.01	234.0
Lynn	105,000	54	88	.84	0		
New Bedford	120,000	51	119	.99	0		
Somerville	102,000	66	146	1.43	0		
Springfield	147,000	190	209	1.42	1	.01	209.0
Worcester	196,000	203	458	2.34	0		
Michigan:							
Detroit	1,335,000	1 402	3,282	2.46	3	.00	1,094.0
Flint	143,000	189	365	2.55	0		
Grand Rapids	162,000	185	49	.30	0		
Minnesota:							
Duluth	115,000	120	16	.14	0		
Minneapolis	448,000	1 117	73	.16	1	.00	73.0
St. Paul	250,000	354	93	.37	0		
Missouri:							
Kansas City	383,000	297	571	1.49	0		
St. Louis	839,000	207	1,631	1.94	0		
Nebraska:							
Omaha	219,000	1 18	527	2.41	0		
New Jersey:							
Camden	133,000	51	59	.44	0		
Elizabeth		236	496		0		
Newark	467,000	852	2,038	4.36	1	.00	2,038.0
Paterson	144,000	51	215	1.49	0		
Trenton	137,000	14	4 25	4.18	0		
New York:							
Albany	120,000	1 212	111	.92	0		
Buffalo	550,000	423	612	1.11	1	.00	612.0
New York	5,971,000	3,045	9,668	1.62	3	.00	3,222.7
Rochester	325,000	438	150	.46	0		
Syracuse	197,000	400	289	1.47	0		
Utica	103,000	111	7	.07	0		
Yonkers	119,000	98	349	2.93	0		
Ohio:							
Akron		263	472		0		
Canton	113,000	177	281	2.49	0		
Cincinnati	412,000	1 250	548	1.33	0		
Cleveland	973,000	314	2,368	2.43	0		
Columbus	291,000	1 54	32	.11	0		
Dayton	181,000	1 13	1	.01	0		
Toledo	305,000	1 14	274	.90	0		
Youngstown	169,000	19	23	.14	0		
Oregon:							
Portland		172	99		0		
Pennsylvania:							
Erie		1 59	71		0		
Philadelphia	2,036,000	1 775	3,972	1.95	0		
Pittsburgh	666,000	1 339	579	.87	2	.00	289.5
Reading	115,000	219	868	7.55	0		
Scranton	144,000	32	515	3.58	1	.01	515.0
Rhode Island:							
Providence	281,000	45	121	.43	0		
Tennessee:							
Knoxville	102,000	1 28	50	.49	0		
Memphis	179,000	207	135	.75	0		
Texas:							
Dallas	212,000	130	62	.29	0		
El Paso	114,000	1 200	327	2.87	0		

¹ 4 years only.² 3 years only.³ State census, 1925.⁴ Includes nonresidents.

MUMPS—Continued

City	Estimated population, July 1, 1927	Average, 1922-1926	1927				
			Cases reported	Cases per 1,000 inhabitants	Deaths registered	Deaths per 1,000 inhabitants	Cases reported for each death registered
Texas—Continued.							
Fort Worth.....	164,000	17	20	0.12	0		
Houston.....		15	61		1		61.0
San Antonio.....	211,000	3	13	.06	0		
Utah:							
Salt Lake City.....	138,000	766	50	.37	0		
Virginia:							
Norfolk.....	179,000	149	115	.64	0		
Richmond.....	192,000	73	57	.30	0		
Washington:							
Seattle.....	375,000	897	1,424	3.80	0		
Spokane.....	109,000	55	220	2.02	0		
Tacoma.....	107,000	106	23	.21	0		
Wisconsin:							
Milwaukee.....	536,000	982			1	0.00	
Total:							
69 cities.....	28,716,000	19,986	45,900	1.599	16	.0005	2,869.3
77 cities.....		21,078	47,810		19		2,516.3

14 years only.

PELLAGRA

City	Estimated population, July 1, 1927	Cases reported, 1927	Cases per 1,000 inhabitants	Deaths registered, 1927	Deaths per 1,000 inhabitants	Cases reported for each death registered
Alabama:						
Birmingham.....	218,000	45	0.21	28	0.13	1.6
California:						
Los Angeles.....	—	12	—	10	—	1.2
Oakland.....	267,000	2	.01	1	.00	2.0
San Diego.....	115,000	—	—	1	.01	—
San Francisco.....	576,000	—	—	9	.02	—
District of Columbia:						
Washington.....	540,000	6	.01	5	.01	1.2
Florida:						
Miami.....	140,000	19	.14	5	.04	3.8
Tampa.....	108,000	—	—	6	.06	—
Georgia:						
Atlanta.....	249,000	—	—	37	.15	—
Illinois:						
Chicago.....	3,103,000	—	—	16	.01	—
Indiana:						
Indianapolis.....	374,000	—	—	1	.00	—
Louisiana:						
New Orleans.....	424,000	79	.19	43	.10	1.8
Maryland:						
Baltimore.....	819,000	—	—	10	.01	—
Massachusetts:						
Boston.....	793,000	9	.01	4	.01	2.2
New Bedford.....	1120,000	1	.01	0	—	—
Worcester.....	196,000	—	—	1	.01	—
Michigan:						
Detroit.....	1,335,000	2	.00	2	.00	1.0
Minnesota:						
Minneapolis.....	448,000	—	—	2	.00	—
Missouri:						
Kansas City.....	383,000	—	—	2	.01	—
St. Louis.....	839,000	—	—	11	.01	—
New Jersey:						
Trenton.....	137,000	—	—	1	.01	—
New York:						
New York.....	5,971,000	—	—	9	.00	—
Ohio:						
Cleveland.....	973,000	—	—	10	.01	—
Oklahoma:						
Oklahoma City.....	—	3	—	2	—	1.5
Tulsa.....	150,000	—	—	7	.05	—

1 State census, 1925.

PELLAGRA—Continued

City	Estimated population, July 1, 1927	Cases reported, 1927	Cases per 1,000 inhabitants	Deaths registered, 1927	Deaths per 1,000 inhabitants	Cases reported for each death registered
Pennsylvania:						
Philadelphia.....	2,036,000	-----	-----	17	0.01	-----
Pittsburgh.....	666,000	1	0.00	1	.00	1.0
Tennessee:						
Knoxville.....	102,000	68	.67	53	.52	1.3
Memphis.....	179,000	28	.16	20	.11	1.4
Nashville.....	138,000	26	.19	19	.14	1.4
Texas:						
Dallas.....	212,000	251	1.18	51	.24	4.9
El Paso.....	114,000	-----	-----	2	.02	-----
Fort Worth.....	164,000	-----	-----	36	.22	-----
Houston.....	-----	-----	-----	37	-----	-----
San Antonio.....	211,000	-----	-----	10	.05	-----
Virginia:						
Norfolk.....	179,000	-----	-----	6	.03	-----
Richmond.....	192,000	-----	-----	9	.05	-----
Total:						
34 cities.....	22,471,000	-----	-----	435	.019	-----
37 cities.....	-----	-----	-----	484	-----	-----

PNEUMONIA (ALL FORMS)

City	Estimated population, July 1, 1927	Cases reported, 1927	Cases per 1,000 inhabitants	Deaths registered, 1927	Deaths per 1,000 inhabitants	Cases reported for each death registered
Alabama:						
Birmingham.....	218,000	608	2.79	297	1.36	2.0
California:						
Long Beach.....	104,000	-----	-----	87	.84	-----
Los Angeles.....	-----	2,165	-----	875	-----	2.5
Oakland.....	267,000	137	1.51	201	.75	-----
San Diego.....	115,000	217	1.89	168	1.46	1.3
San Francisco.....	576,000	333	1.58	506	.88	-----
Colorado:						
Denver.....	290,000	-----	-----	364	1.26	-----
Connecticut:						
Bridgeport.....	-----	333	-----	154	-----	2.2
Hartford.....	168,000	484	2.88	130	.77	3.7
New Haven.....	185,000	-----	-----	199	1.08	-----
Waterbury.....	-----	146	-----	100	-----	1.5
Delaware:						
Wilmington.....	126,000	-----	-----	141	1.12	-----
District of Columbia:						
Washington.....	540,000	1,125	2.08	578	1.07	1.9
Florida:						
Miami.....	140,000	100	.71	54	.39	1.9
Tampa.....	108,000	-----	-----	78	.72	-----
Georgia:						
Atlanta.....	249,000	574	2.31	343	1.38	1.7
Illinois:						
Chicago.....	3,103,000	7,638	2.46	2,896	.93	2.6
Indiana:						
Fort Wayne.....	103,000	-----	-----	108	1.05	-----
Indianapolis.....	374,000	-----	-----	386	1.03	-----
Iowa:						
Des Moines.....	149,000	-----	-----	116	.78	-----
Kansas:						
Kansas City.....	118,000	-----	-----	172	1.46	-----
Louisiana:						
New Orleans.....	424,000	637	1.50	572	1.35	1.1
Maryland:						
Baltimore.....	819,000	1,781	2.17	1,444	1.76	1.2
Massachusetts: ¹						
Boston.....	793,000	1,390	1.75	1,113	1.40	-----
Cambridge.....	124,000	219	1.77	148	1.19	-----
Fall River.....	133,000	129	.97	125	.94	-----
Lowell.....	110,000	71	.65	108	.98	-----
Lynn.....	105,000	120	1.14	109	1.04	-----
New Bedford.....	120,000	83	.69	108	.90	-----
Somerville.....	102,000	126	1.24	99	.97	-----
Springfield.....	147,000	147	1.00	112	.76	-----
Worcester.....	196,000	262	1.34	109	.56	-----

¹ Lobar pneumonia only.² Cases reported by cities in Massachusetts are lobar pneumonia only; deaths are for all forms.³ State census, 1925.

PNEUMONIA (ALL FORMS)—Continued

City	Estimated population, July 1, 1927	Cases reported, 1927	Cases per 1,000 inhabitants	Deaths registered, 1927	Deaths per 1,000 inhabitants	Cases reported for each death registered
Michigan:						
Detroit.....	1,335,000	3,497	2.62	1,320	0.99	2.6
Flint.....	143,000			225	1.57	
Grand Rapids.....	162,000	124	.77	89	.55	1.4
Minnesota:						
Duluth.....	115,000			71	.62	
Minneapolis.....	448,000			416	.93	
St. Paul.....	250,000			302	1.21	
Missouri:						
Kansas City.....	383,000			459	1.20	
St. Louis.....	839,000			645	.77	
Nebraska:						
Omaha.....	219,000			216	.99	
New Jersey:						
Camden.....	133,000	222	1.67	159	1.20	1.4
Elizabeth.....				108		
Jersey City.....	322,000			369	1.15	
Newark.....	467,000	2,052	4.39	479	1.03	4.3
Paterson.....	144,000			155	1.08	
Trenton.....	137,000			176	1.28	
New York:						
Albany.....	120,000	519	4.32	161	1.34	3.2
Buffalo.....	550,000	1,143	2.08	618	1.12	1.8
New York.....	5,971,000	18,273	3.06	7,523	1.26	2.4
Rochester.....	325,000	1,137	3.50	274	.84	4.1
Syracuse.....	197,000	658	3.34	205	1.04	3.2
Utica.....	103,000	338	3.28	124	1.20	2.7
Yonkers.....	119,000	193	1.62	128	1.08	1.5
Ohio:						
Akron.....				221		
Canton.....	113,000			128	1.13	
Cincinnati.....	412,000			504	1.22	
Cleveland.....	973,000	1,860	1.91	826	.85	2.3
Columbus.....	291,000			254	.87	
Dayton.....	181,000			144	.80	
Toledo.....	305,000	280	.92	259	.85	1.1
Youngstown.....	169,000			202	1.20	
Oklahoma:						
Oklahoma City.....		414		204		2.0
Tulsa.....	150,000			140	.93	
Oregon:						
Portland.....				249		
Pennsylvania:						
Erie.....		194		94		2.1
Philadelphia.....	2,036,000			2,361	1.16	
Pittsburgh.....	666,000	2,830	4.25	1,018	1.53	2.8
Reading.....	115,000			96	.83	
Scranton.....	144,000	116	.81	114	.79	1.0
Rhode Island:						
Providence.....	281,000			224	.80	
Tennessee:						
Knoxville.....	102,000			142	1.39	
Memphis.....	179,000			283	1.58	
Nashville.....	138,000			205	1.49	
Texas:						
Dallas.....	212,000	525	2.48	169	.80	3.1
El Paso.....	114,000			112	.98	
Fort Worth.....	164,000			176	1.07	
Houston.....				208		
San Antonio.....	211,000			238	1.13	
Utah:						
Salt Lake City.....	136,000			167	1.23	
Virginia:						
Norfolk.....	179,000			176	.98	
Richmond.....	192,000			196	1.02	
Washington:						
Seattle.....	375,000			221	.59	
Spokane.....	109,000	127	1.17	125	1.15	1.0
Tacoma.....	107,000			32	.30	
Wisconsin:						
Milwaukee.....	536,000	820	1.53	456	.85	1.8
Total:						
77 cities.....	31,078,000			33,953	1.093	
86 cities.....				36,166		

* Includes nonresidents.

POLIOMYELITIS (INFANTILE PARALYSIS)

City	Estimated population, July 1, 1927	Estimated expectancy		1927				
		Number of years	Cases	Cases reported	Cases per 1,000 inhabitants	Deaths registered	Deaths per 1,000 inhabitants	Fatalities per 100 cases
Alabama:								
Birmingham.....	218,000	7	4	5	0.02	2	0.01	40.0
California:								
Long Beach.....	104,000	7	4	21	.20	5	.05	23.8
Los Angeles.....		7	35	142		34		23.9
Oakland.....	267,000	6	7	68	.25	7	.03	10.3
San Diego.....	115,000	7	5	19	.17	4	.03	21.1
San Francisco.....	576,000	7	4	90	.16	12	.02	13.3
Colorado:								
Denver.....	290,000	6	4	21	.07	2	.01	9.5
Connecticut:								
Bridgeport.....		7	6	9		0		
Hartford.....	168,000	7	3	10	.06	0		
New Haven.....	185,000	7	5	12	.06	1	.01	8.3
Waterbury.....		7	4	6		2		33.3
Delaware:								
Wilmington.....	126,000	7	0	5	.04	1	.01	20.0
District of Columbia:								
Washington.....	540,000	7	19	14	.03	6	.01	42.9
Florida:								
Miami.....	140,000	5	1	2	.01	0		
Tampa.....	108,000	4	1	4	.04	1	.01	25.0
Georgia:								
Atlanta.....	249,000	6	1	5	.02	0		
Illinois:								
Chicago.....	3,103,000	7	67	148	.05	29	.01	19.6
Indiana:								
Fort Wayne.....	103,000	6	3	14	.14	6	.06	42.9
Indianapolis.....	374,000	7	3	4	.01	1	.00	25.0
Iowa:								
Des Moines.....	149,000	4	3	4	.03	1	.01	25.0
Kansas:								
Kansas City.....	118,000	7	1	30	.25	6	.05	20.0
Louisiana:								
New Orleans.....	424,000	7	5	37	.09	8	.02	21.6
Maryland:								
Baltimore.....	819,000	7	28	11	.01	4	.00	36.4
Massachusetts:								
Boston.....	793,000	7	50	413	.52	63	.08	15.3
Cambridge.....	124,000	7	4	53	.43	4	.03	7.5
Fall River.....	133,000	7	6	24	.18	3	.02	12.5
Lowell.....	110,000	7	6	13	.12	2	.02	15.4
Lynn.....	105,000	6	4	42	.40	8	.08	19.0
New Bedford.....	120,000	7	2	11	.09	2	.02	18.2
Somerville.....	102,000	7	7	30	.29	5	.05	16.7
Springfield.....	147,000	7	3	12	.08	6	.04	50.0
Worcester.....	196,000	6	5	32	.16	6	.03	18.8
Michigan:								
Detroit.....	1,335,000	5	17	70	.05	13	.01	18.6
Flint.....	143,000	7	4	10	.07	2	.01	20.0
Grand Rapids.....	162,000	7	4	13	.08	2	.01	15.4
Minnesota:								
Duluth.....	115,000	7	1	8	.07	2	.02	25.0
Minneapolis.....	448,000	7	7	13	.03	3	.01	23.1
St. Paul.....	250,000	7	9	8	.03	0		
Missouri:								
Kansas City.....	383,000	7	3	61	.16	8	.02	13.1
St. Louis.....	839,000	7	10	7	.01	4	.00	57.1
Nebraska:								
Omaha.....	219,000	5	1	21	.10	4	.02	19.0
New Jersey:								
Camden.....	133,000	7	2	3	.02	1	.01	33.3
Elizabeth.....		5	2	15		3		20.0
Jersey City.....	322,000	7	4	20	.06	2	.01	10.0
Newark.....	467,000	7	21	39	.08	6	.01	15.4
Paterson.....	144,000	7	6	8	.06	1	.01	12.5
Trenton.....	137,000	7	4	14	.03	1	.01	25.0
New York:								
Albany.....	120,000	7	2	16	.13	2	.02	12.5
Buffalo.....	550,000	4	6	14	.03	1	.00	7.1
New York.....	5,971,000	7	307	537	.09	76	.01	14.2
Rochester.....	325,000	5	8	7	.02	3	.01	42.9
Syracuse.....	197,000	7	15	2	.01	0		
Utica.....	103,000	7	5	8	.08	0		
Yonkers.....	119,000	7	4	6	.05	1	.01	16.7

¹ State census, 1925.² Includes 2 nonresidents.³ Includes nonresidents.

POLIOMYELITIS (INFANTILE PARALYSIS)—Continued

City	Estimated population, July 1, 1927	Estimated expectancy		1927				
		Number of years	Cases	Cases reported	Cases per 1,000 inhabitants	Deaths registered	Deaths per 1,000 inhabitants	Fatalities per 100 cases
Ohio:								
Akron.....		6	3	41		1		2.4
Canton.....	113,000	7	1	27	0.24	6	0.05	22.2
Cincinnati.....	412,000	7	5	69	.17	3	.01	4.3
Cleveland.....	973,000	7	24	69	.07	3	.00	4.3
Columbus.....	291,000	5	3	17	.06	3	.01	17.6
Dayton.....	181,000	7	3	12	.07	3	.02	25.0
Toledo.....	305,000	7	4	13	.04	3	.01	23.1
Youngstown.....	169,000	7	3	2	.01	1	.01	50.0
Oklahoma:								
Tulsa.....	150,000					2	.01	
Oregon:								
Portland.....		6	8	55		21		38.2
Pennsylvania:								
Erie.....		7	4	5		3		60.0
Philadelphia.....	2,036,000	7	22	53	.03	12	.01	22.6
Pittsburgh.....	656,000	6	9	56	.08	9	.01	16.1
Reading.....	115,000	7	1	4	.03	0		
Scranton.....	144,000	7	0	3	.02	0		
Rhode Island:								
Providence.....	281,000	7	9	30	.11	6	.02	20.0
Tennessee:								
Knoxville.....	102,000	6	0	6	.06	0		
Memphis.....	179,000	7	2	5	.03	0		
Nashville.....	138,000	6	2	24	.17	3	.02	12.5
Texas:								
Dallas.....	212,000	7	2	35	.17	9	.04	25.7
El Paso.....	114,000	4	1	10	.09	2	.02	20.0
Fort Worth.....	164,000	6	1	59	.36	7	.04	11.9
Houston.....		6	1	14		4		28.6
San Antonio.....	211,000	6	1			2	.01	
Utah:								
Salt Lake City.....	136,000	5	2	26	.19	3	.02	11.5
Virginia:								
Norfolk.....	179,000	7	2	2	.01	0		
Richmond.....	192,000	7	6	4	.02	2	.01	50.0
Washington:								
Seattle.....	375,000	7	4	26	.07	7	.02	26.9
Spokane.....	109,000	7	2	19	.17	2	.02	10.5
Tacoma.....	107,000	7	3	92	.86	24	.22	26.1
Wisconsin:								
Milwaukee.....	536,000	7	8	29	.05	5	.01	17.2
Total:								
75 cities.....	30,717,000		820	2,721	.089	440	.014	16.2
77 cities.....	31,078,000					444	.014	
83 cities.....				3,008				
85 cities.....						512		

RABIES IN ANIMALS

City	Cases reported, 1927	City	Cases reported, 1927
Alabama:		New Jersey—Continued.	
Birmingham.....	70	Newark.....	35
California:		Paterson.....	32
Long Beach.....	7	Trenton.....	2
Los Angeles.....	205	New York:	
District of Columbia:		Albany.....	3
Washington.....	62	New York.....	465
Florida:		Yonkers.....	14
Miami.....	4	Ohio:	
Kansas:		Akron.....	204
Kansas City.....	5	Cleveland.....	141
Massachusetts:		Columbus.....	32
Boston.....	133	Dayton.....	12
Cambridge.....	5	Toledo.....	374
Lynn.....	5	Pennsylvania:	
Somerville.....	7	Erie.....	2
Michigan:		Tennessee:	
Detroit.....	265	Memphis.....	71
Grand Rapids.....	2	Texas:	
Missouri:		Dallas.....	3
Kansas City.....	87	San Antonio.....	65
New Jersey:		Virginia:	
Elizabeth.....	20	Richmond.....	38
Jersey City.....	22		

RABIES IN MAN

City	Deaths registered, 1927	City	Deaths registered, 1927
Florida:		New Jersey:	
Tampa.....	1	Jersey City.....	1
Georgia:		New York:	
Atlanta.....	2	New York.....	6
Illinois:		Ohio:	
Chicago.....	8	Cincinnati.....	1
Indiana:		Cleveland.....	1
Indianapolis.....	2	Dayton.....	1
Kansas:		Toledo.....	2
Kansas City.....	1	Oklahoma:	
Maryland:		Tulsa.....	1
Baltimore.....	2	Pennsylvania:	
Massachusetts:		Pittsburgh.....	2
Boston.....	1	Tennessee:	
Michigan:		Memphis.....	1
Detroit.....	2	Nashville.....	2
Missouri:		Texas:	
St. Louis.....	1	Houston.....	1

SCARLET FEVER

City	Estimated population, July 1, 1927	Estimated expectancy		1927				
		Number of years	Cases	Cases reported	Cases per 1,000 inhabitants	Deaths registered	Deaths per 1,000 inhabitants	Fatalities per 100 cases
Alabama:								
Birmingham.....	218,000	7	182	141	0.65	2	0.01	1.4
California:								
Long Beach.....	104,000	7	110	320	3.08	0		
Los Angeles.....		7	1,214	1,347		8		.6
Oakland.....	267,000	7	305	797	2.99	7	.03	.9
San Diego.....	115,000	7	217	302	2.63	1	.01	.3
San Francisco.....	576,000	7	574	878	1.52	7	.01	.8
Colorado:								
Denver.....	290,000	7	518	2,053	7.08	16	.06	.8
Connecticut:								
Bridgeport.....		7	438	401		0		
Hartford.....	168,000	7	238	327	1.95	0		
New Haven.....	185,000	7	510	147	.79	1	.01	.7
Waterbury.....		7	309	110		0		
Delaware:								
Wilmington.....	126,000	7	295	492	3.90	0		
District of Columbia:								
Washington.....	540,000	7	855	944	1.75	8	.01	.8
Florida:								
Miami.....	140,000	6	13	45	.32	1	.01	2.2
Tampa.....	108,000	4	25	76	.70	1	.01	1.3
Georgia:								
Atlanta.....	249,000	7	212	356	1.43	2	.01	.6
Illinois:								
Chicago.....	3,103,000	7	4,953	4,604	1.48	77	.02	1.7
Indiana:								
Fort Wayne.....	103,000	7	195	233	2.26	0		
Indianapolis.....	374,000	7	348	804	2.15	14	.04	1.7
Iowa:								
Des Moines.....	149,000	6	205	392	2.63	1	.01	.3
Kansas:								
Kansas City.....	118,000	7	187	170	1.44	0		
Louisiana:								
New Orleans.....	424,000	7	247	189	.45	8	.02	4.2
Maryland:								
Baltimore.....	819,000	7	1,122	1,014	1.24	9	.01	.9
Massachusetts:								
Boston.....	793,000	7	2,873	4,110	5.18	53	.07	1.3
Cambridge.....	124,000	7	285	482	3.89	3	.02	.6
Fall River.....	133,000	7	141	183	1.38	1	.01	.5
Lowell.....	110,000	7	221	162	1.47	1	.01	.6
Lynn.....	105,000	7	230	1,022	9.73	5	.05	.5
New Bedford.....	120,000	7	217	335	2.79	2	.02	.6
Somerville.....	102,000	7	226	618	6.06	4	.04	.6
Springfield.....	147,000	7	336	216	1.47	1	.01	.5
Worcester.....	196,000	7	448	431	2.20	1	.01	.2
Michigan:								
Detroit.....	1,335,000	7	3,656	3,733	2.80	41	.03	1.1
Flint.....	143,000	7	434	1,160	8.11	16	.11	1.4
Grand Rapids.....	162,000	7	428	487	3.01	1	.01	.2

¹ State census, 1925.

SCARLET FEVER—Continued

City	Estimated population, July 1, 1927	Estimated expectancy		1927				
		Number of years	Cases	Cases reported	Cases per 1,000 inhabitants	Deaths registered	Deaths per 1,000 inhabitants	Fatalities per 100 cases
Minnesota:								
Duluth.....	115,000	7	409	357	3.10	0		
Minneapolis.....	448,000	7	2,211	1,834	4.09	13	0.03	0.7
St. Paul.....	250,000	7	1,432	963	3.85	3	.01	.3
Missouri:								
Kansas City.....	383,000	7	500	864	2.26	10	.03	1.2
St. Louis.....	839,000	7	1,735	1,294	1.54	16	.02	1.2
Nebraska:								
Omaha.....	219,000	7	195	474	2.16	2	.01	.4
New Jersey:								
Camden.....	133,000	7	207	179	1.35	6	.05	3.4
Elizabeth.....		7	255	318		1		.3
Jersey City.....	322,000	7	420	598	1.86	5	.02	.8
Newark.....	467,000	7	1,023	1,422	3.04	12	.03	.8
Paterson.....	144,000	7	221	358	2.49	6	.04	1.7
Trenton.....	137,000	7	246	100	1.73	1	.01	1.0
New York:								
Albany.....	120,000	7	262	261	2.17	2	.02	.8
Buffalo.....	550,000	7	853	1,072	1.95	18	.03	1.7
New York.....	5,971,000	7	8,399	18,339	3.07	102	.02	.6
Rochester.....	325,000	7	500	509	1.57	10	.03	2.0
Syracuse.....	197,000	7	629	337	1.71	3	.02	.9
Utica.....	103,000	6	191	66	.64	2	.02	3.0
Yonkers.....	119,000	7	278	905	7.61	5	.04	.6
Ohio:								
Akron.....		7	510	1,503		8		.5
Canton.....	113,000	7	194	346	3.06	5	.04	1.4
Cincinnati.....	412,000	7	644	987	2.40	8	.02	.8
Cleveland.....	973,000	5	2,257	1,517	1.56	17	.02	1.1
Columbus.....	291,000	7	439	598	2.05	8	.03	1.3
Dayton.....	181,000	7	277	227	1.25	4	.02	1.8
Toledo.....	305,000	7	609	473	1.55	4	.01	.8
Youngstown.....	169,000	7	395	309	1.83	4	.02	1.3
Oklahoma:								
Oklahoma City.....		6	125	121		1		.8
Tulsa.....	150,000					2	.01	
Oregon:								
Portland.....		7	265	314		2		.6
Pennsylvania:								
Erie.....		7	355	509		6		1.2
Philadelphia.....	2,036,000	7	3,765	4,295	2.11	34	.02	.8
Pittsburgh.....	666,000	7	1,656	1,121	1.68	14	.02	1.2
Reading.....	115,000	7	91	166	1.44	1	.01	.6
Scranton.....	144,000	7	129	175	1.22	4	.03	2.3
Rhode Island:								
Providence.....	281,000	7	353	605	2.15	8	.03	1.3
Tennessee:								
Knoxville.....	102,000	7	105	113	1.11	3	.03	2.7
Memphis.....	179,000	7	235	578	3.23	4	.02	.7
Nashville.....	138,000	7	155	92	.67	1	.01	1.1
Texas:								
Dallas.....	212,000	7	165	327	1.54	2	.01	.6
El Paso.....	114,000	5	88	229	2.01	3	.03	1.3
Fort Worth.....	164,000	7	65	161	.98	4	.02	2.5
Houston.....		7	79	151		0		
San Antonio.....	211,000	7	32	97	.46	2	.01	2.1
Utah:								
Salt Lake City.....	136,000	7	130	347	2.55	2	.01	.6
Virginia:								
Norfolk.....	179,000	7	82	195	1.09	0		
Richmond.....	192,000	7	238	219	1.14	5	.03	2.3
Washington:								
Seattle.....	375,000	7	454	397	1.06	4	.01	1.0
Spokane.....	109,000	7	292	191	6.40	7	.06	1.0
Tacoma.....	107,000	7	117		1.79	2	.02	1.0
Wisconsin:								
Milwaukee.....	536,000	7	1,151	1,519	2.83	8	.01	.5
Total:				73,137				
76 cities.....	30,928,000		54,635	77,911	2.365	658	.021	.9
85 cities.....			58,185			684		.9
86 cities.....						686		

* Includes nonresidents.

SEPTIC SORE THROAT

City	Estimated population, July 1, 1927	Cases reported, 1927	Cases per 1,000 inhabitants	Deaths registered, 1927	Deaths per 1,000 inhabitants	Cases reported for each death registered
Alabama:						
Birmingham	218,000	1	0.00	0		
California:						
Los Angeles		7		7		1.0
Oakland	267,000	5	.02	1	0.00	5.0
San Diego	115,000	5	.04	5	.04	1.0
San Francisco	576,000			3	.01	
Colorado:						
Denver	290,000			14	.05	
Connecticut:						
Bridgeport		16		5		3.2
Hartford	168,000	8	.05	1	.01	8.0
New Haven	185,000	2	.01	0		
District of Columbia:						
Washington	540,000			13	.02	
Georgia:						
Atlanta	249,000	100	.40	6	.02	16.7
Illinois:						
Chicago	3,103,000	49	.02	22	.01	2.2
Indiana:						
Indianapolis	374,000			1	.00	
Kansas:						
Kansas City	118,000	1	.01	1	.01	1.0
Louisiana:						
New Orleans	424,000	3	.01	0		
Maryland:						
Baltimore	819,000	63	.08	6	.01	10.5
Massachusetts:						
Boston	793,000	73	.09	15	.02	4.9
Cambridge	124,000	3	.02	0		
Fall River	133,000	17	.13	2	.02	8.5
Lowell	110,000	1	.01	0		
Lynn	105,000	1	.01	0		
Springfield	147,000	1	.01	1	.01	1.0
Worcester	196,000	6	.03	2	.01	3.0
Michigan:						
Detroit	1,335,000	13	.01	2	.00	6.5
Flint	143,000			6	.04	
Grand Rapids	162,000			7	.04	
Minnesota:						
Duluth	115,000			6	.05	
St. Paul	250,000			4	.02	
Missouri:						
Kansas City	383,000			19	.05	
St. Louis	839,000			19	.02	
New Jersey:						
Newark	467,000			7	.01	
Trenton	137,000			5	.04	
New York:						
Albany	120,000	7	.06	2	.02	3.5
New York	5,971,000			96	.02	
Rochester	325,000			9	.03	
Syracuse	197,000	1	.01	1	.01	1.0
Yonkers	119,000	1	.01	0		
Ohio:						
Akron				4		
Cleveland	973,000	882	.91	32	.03	27.6
Columbus	291,000	2	.01	2	.01	1.0
Youngstown	169,000			10	.06	
Oklahoma:						
Tulsa	150,000			4	.03	
Oregon:						
Portland		1		0		
Pennsylvania:						
Philadelphia	2,036,000			40	.02	
Pittsburgh	666,000			20	.03	
Rhode Island:						
Providence	281,000	4	.01	2	.01	2.0
Tennessee:						
Nashville	138,000	5	.04	0		
Texas:						
Dallas	212,000	27	.13	13	.06	2.1
El Paso	114,000			1	.01	
San Antonio	211,000			9	.04	
Virginia:						
Richmond	192,000			12	.06	
Washington:						
Seattle	375,000			10	.03	
Wisconsin:						
Milwaukee	536,000			16	.03	
Total:						
49 cities	25,961,000			447	.017	
53 cities				463		

¹ State census, 1925.² Includes nonresidents.

SMALLPOX

City	Estimated population, July 1, 1927	Estimated expectancy		1927				
		Number of years	Cases	Cases reported	Cases per 1,000 inhabitants	Deaths registered	Deaths per 1,000 inhabitants	Fatalities per 100 cases
Alabama:								
Birmingham	218,000	7	266	164	0.75	0		
California:								
Long Beach	104,000	4	62	4	.04	0		
Los Angeles		7	766	10		0		
Oakland	267,000	7	131	265	.99	0		
San Diego	115,000	6	45	3	.03	0		
San Francisco	576,000	7	90	36	.06	0		
Colorado:								
Denver	290,000	4	15	10	.03	0		
Connecticut:								
Bridgeport		7	1	0		0		
Hartford	168,000	7	0	0		0		
New Haven	185,000	7	0	0		0		
Waterbury		7	0	0		0		
Delaware:								
Wilmington	126,000	7	1	0		0		
District of Columbia:								
Washington	540,000	7	66	63	.12	0		
Florida:								
Miami	140,000	6	20	17	.12	0		
Tampa	108,000	5	6	19	.18	0		
Georgia:								
Atlanta	249,000	6	108	314	1.26	1	0.00	0.3
Illinois:								
Chicago	3,103,000	7	95	90	.03	1	.00	1.1
Indiana:								
Fort Wayne	103,000	7	40	89	.86	0		
Indianapolis	374,000	7	362	803	2.15	4	.01	.5
Iowa:								
Des Moines	149,000	6	88	184	1.23	0		
Kansas:								
Kansas City	118,000	5	10	67	.57	0		
Louisiana:								
New Orleans	424,000	5	12	7	.02	0		
Maryland:								
Baltimore	819,000	7	14	0		0		
Massachusetts:								
Boston	793,000	7	1	0		0		
Cambridge	124,000	7	0	0		0		
Fall River	133,000	7	0	0	.18	0		
Lowell	110,000	7	0	0		0		
Lynn	105,000	7	0	0		0		
New Bedford	120,000	7	0	0		0		
Somerville	102,000	7	0	0		0		
Springfield	147,000	7	0	0		0		
Worcester	196,000	7	0	0		0		
Michigan:								
Detroit	1,335,000	4	86	43	.03	0		
Flint	143,000	7	56	74	.52	0		
Grand Rapids	162,000	7	30	21	.13	0		
Minnesota:								
Duluth	115,000	7	228	1	.01	0		
Minneapolis	448,000	4	342	12	.03	0		
St. Paul	250,000	6	435	36	.14	0		
Missouri:								
Kansas City	383,000	7	33	225	.59	1	.00	.4
St. Louis	839,000	7	127	67	.08	0		
Nebraska:								
Omaha	219,000	6	208	75	.34	2	.01	2.7
New Jersey:								
Camden	133,000	7	2	0		0		
Elizabeth		7	0	0		0		
Jersey City	322,000	7	1	1	.00	0		
Newark	467,000	7	4	1	.00	0		
Paterson	144,000	7	0	0		0		
Trenton	137,000	7	4	1	.01	0		
New York:								
Albany	120,000	7	1	0		0		
Buffalo	550,000	7	19	1	.00	0		
New York	5,971,000	7	21	7	.00	0		
Rochester	325,000	7	3	0		0		
Syracuse	197,000	7	1	6	.03	0		
Utica	103,000	7	0	2	.02	0		
Yonkers	119,000	7	0	0		0		

¹ State census, 1925.

SMALLPOX—Continued

City	Estimated population, July 1, 1927	Estimated expectancy		1927				
		Number of years	Cases	Cases reported	Cases per 1,000 inhabitants	Deaths registered	Deaths per 1,000 inhabitants	Fatalities per 100 cases
Ohio:								
Akron	113,000	7	18	22	0.02	0		
Canton	412,000	7	98	49	.12	0		
Cincinnati	973,000	7	30	2	.00	0		
Cleveland	291,000	7	81	20	.07	0		
Columbus	181,000	7	60	18	.10	0		
Dayton	305,000	7	129	10	.03	0		
Toledo	169,000	7	96	0		0		
Youngstown								
Oklahoma:								
Oklahoma City		6	60	257		0		
Tulsa	150,000					0		
Oregon:								
Portland		5	375	236		0		
Pennsylvania:								
Erie		7	1	0		0		
Philadelphia	2,036,000	7	27	2	.00	0		
Pittsburgh	666,000	7	8	2	.00	0		
Reading	115,000	7	0	0		0		
Scranton	144,000	7	0	1	.01	0		
Rhode Island:								
Providence	281,000	7	1	5	.02	0		
Tennessee:								
Knoxville	102,000	3	9	8	.08	0		
Memphis	179,000	7	147	199	1.11	0		
Nashville	138,000	7	46	5	.04	0		
Texas:								
Dallas	212,000	7	48	159	.75	0		
El Paso	114,000	5	4	3	.03	0		
Fort Worth	164,000	7	50	175	1.07	0		
Houston		7	43	123		1		0.8
San Antonio	211,000	7	8	13	.06	1	0.00	7.7
Utah:								
Salt Lake City	136,000	5	22	148	1.09	0		
Virginia:								
Norfolk	179,000	7	7	0		0		
Richmond	192,000	7	10	1	.01	0		
Washington:								
Seattle	375,000	5	133	31	.08	0		
Spokane	109,000	5	286	445	4.08	0		
Tacoma	107,000	7	270	421	3.93	0		
Wisconsin:								
Milwaukee	536,000	5	112	14	.03	0		
Total:								
76 cities	30,928,000		4,811	4,441	.144	10	.0003	.2
85 cities			6,075	5,089		11		.2

TUBERCULOSIS (ALL FORMS)

City	Estimated population, July 1, 1927	Cases reported, 1927	Cases per 1,000 inhabitants	Deaths registered, 1927	Deaths per 1,000 inhabitants	Cases reported for each death registered
Alabama:						
Birmingham.....	218,000	559	2.56	229	1.05	2.4
California:						
Long Beach.....	104,000	94	.90	47	.45	2.0
Los Angeles.....	1,320,000	3,419		1,320		2.6
Oakland.....	267,000			140	.52	
San Diego.....	115,000	240	2.09	179	1.56	1.3
San Francisco.....	576,000	1,101	1.91	593	1.03	1.9
Colorado:						
Denver.....	290,000			459	1.58	
Connecticut:						
Bridgeport.....		207		97		2.1
Hartford.....	168,000	240	1.43	120	.71	2.0
New Haven.....	185,000	346	1.87	91	.49	3.8
Waterbury.....		131		56		2.3
Delaware:						
Wilmington.....	126,000			75	.60	
District of Columbia:						
Washington.....	540,000	1,222	2.26	606	1.12	2.0
Florida:						
Miami.....	140,000	216	1.54	68	.49	3.2
Tampa.....	108,000			98	.86	
Georgia:						
Atlanta.....	249,000			226	.91	
Illinois:						
Chicago.....	3,103,000	7,798	2.51	2,567	.83	3.0
Indiana:						
Fort Wayne.....	103,000			61	.59	
Indianapolis.....	374,000			298	.80	
Iowa:						
Des Moines.....	149,000			75	.50	
Kansas:						
Kansas City.....	118,000	203	1.72	97	.82	2.1
Maryland:						
Baltimore.....	819,000	1,461	1.78	822	1.00	1.8
Massachusetts:						
Boston.....	793,000	1,814	2.29	683	.86	2.7
Cambridge.....	124,000	276	2.23	108	.87	2.6
Fall River.....	133,000	207	1.56	129	.97	1.6
Lowell.....	110,000	120	1.09	56	.51	2.1
Lynn.....	106,000	157	1.50	41	.39	3.8
New Bedford.....	120,000	252	2.10	104	.87	2.4
Somerville.....	102,000	132	1.29	38	.37	3.5
Springfield.....	147,000	186	1.27	79	.54	2.4
Worcester.....	196,000	235	1.20	147	.75	1.6
Michigan:						
Detroit.....	1,335,000	2,282	1.71	1,220	.91	1.9
Flint.....	143,000	143	1.00	57	.40	2.5
Grand Rapids.....	162,000	172	1.06	46	.28	3.7
Minnesota:						
Duluth.....	115,000	218	1.90	81	.70	2.7
Minneapolis.....	448,000	1,095	2.44	196	.44	5.6
St. Paul.....	250,000	303	1.21	187	.75	1.6
Missouri:						
Kansas City.....	383,000			331	.86	
St. Louis.....	839,000	1,416	1.69	606	.72	2.3
Nebraska:						
Omaha.....	219,000			120	.55	
New Jersey:						
Camden.....	133,000	202	1.52	79	.59	2.6
Elizabeth.....		148		64		2.3
Jersey City.....	322,000	577	1.79	221	.69	2.6
Newark.....	467,000	889	1.90	387	.83	2.3
Paterson.....	144,000	215	1.49	99	.69	2.2
Trenton.....	137,000	264	1.93	159	1.16	1.7
New York:						
Albany.....	120,000	209	1.74	126	1.05	1.7
Buffalo.....	550,000	882	1.60	447	.81	2.0
New York.....	5,971,000	11,222	1.88	5,140	.86	2.2
Rochester.....	325,000	486	1.50	148	.46	3.3
Syracuse.....	197,000	348	1.77	86	.44	4.0
Utica.....	103,000	116	1.13	59	.57	2.0
Yonkers.....	119,000	166	1.39	86	.72	1.9
Ohio:						
Akron.....		766		99		7.7
Canton.....	113,000			32	.28	
Cincinnati.....	412,000	973	2.36	530	1.29	1.8
Cleveland.....	973,000	1,733	1.78	789	.81	2.2
Columbus.....	291,000			230	.79	
Dayton.....	181,000			148	.82	
Toledo.....	305,000	564	1.85	305	1.00	1.8
Youngstown.....	169,000			69	.41	

¹ State census, 1925.² Includes nonresidents.

TUBERCULOSIS (ALL FORMS)—Continued

City	Estimated population, July 1, 1927	Cases reported, 1927	Cases per 1,000 inhabitants	Deaths registered, 1927	Deaths per 1,000 inhabitants	Cases reported for each death registered
Oklahoma:						
Oklahoma City				63		
Tulsa	150,000			69	0.46	
Oregon:						
Portland		251		174		1.4
Pennsylvania:						
Erie		352		77		4.6
Philadelphia	2,036,000	3,144	1.54	1,740	.85	1.8
Pittsburgh	666,000			422	.63	
Reading	115,000	58	.50	55	.48	1.1
Scranton	144,000			97	.67	
Rhode Island:						
Providence	281,000			156	.56	
Tennessee:						
Knoxville	102,000	164	1.61	117	1.15	1.4
Memphis	179,000	618	3.45	272	1.52	2.3
Nashville	138,000	530	3.84	197	1.43	2.7
Texas:						
Dallas	212,000	430	2.03	136	.64	3.2
El Paso	114,000			400	3.51	
Houston				218		
San Antonio	211,000			392	1.86	
Utah:						
Salt Lake City	136,000			71	.52	
Virginia:						
Norfolk	179,000	121	.68	120	.67	1.0
Richmond	192,000			188	.98	
Washington:						
Seattle	375,000	700	1.87	201	.54	3.5
Spokane	109,000	91	.83	50	.46	1.8
Tacoma	107,000			31	.29	
Wisconsin:						
Milwaukee	536,000	776	1.45	360	.67	2.2
Total:						
52 cities	25,467,000	47,066	1.883	21,106	.829	2.3
75 cities	30,490,000			25,289	.829	
59 cities		53,240				
84 cities				27,457		

TUBERCULOSIS (RESPIRATORY SYSTEM)

City	Estimated population, July 1, 1927	Cases reported, 1927	Cases per 1,000 inhabitants	Deaths registered, 1927	Deaths per 1,000 inhabitants	Cases reported for each death registered
Alabama:						
Birmingham	218,000	519	2.38	187	0.86	2.8
California:						
Long Beach	104,000			36	.35	
Los Angeles				1,132		
Oakland	267,000	374	1.40	104	.39	3.6
San Diego	115,000			159	1.38	
San Francisco	576,000	1,021	1.77	506	.88	2.0
Colorado:						
Denver	290,000			430	1.48	
Connecticut:						
Bridgeport				82		
Hartford	168,000	215	1.28	104	.62	2.1
New Haven	185,000	279	1.51	82	.44	3.4
Waterbury		121		51		2.4
Delaware:						
Wilmington	126,000			67	.53	
District of Columbia:						
Washington	540,000	1,166	2.16	515	.95	2.3
Florida:						
Miami	140,000	209	1.49	61	.44	3.4
Tampa	108,000			90	.83	
Georgia:						
Atlanta	249,000	460	1.85	162	.65	2.8
Illinois:						
Chicago	3,103,000			2,206	.71	
Indiana:						
Fort Wayne	103,000			48	.47	
Indianapolis	374,000			256	.68	
Iowa:						
Des Moines	149,000			70	.47	

TUBERCULOSIS (RESPIRATORY SYSTEM)—Continued

City	Estimated population, July 1, 1927	Cases reported, 1927	Cases per 1,000 inhabitants	Deaths registered, 1927	Deaths per 1,000 inhabitants	Cases reported for each death registered
Kansas:						
Kansas City.....	118,000	183	1.55	88	0.70	2.2
Louisiana:						
New Orleans.....	424,000	1,066	2.51	676	1.59	1.6
Maryland:						
Baltimore.....	819,000	1,369	1.67	715	.87	1.9
Massachusetts:						
Boston.....	793,000	1,511	1.91	601	.76	2.5
Cambridge.....	124,000	185	1.49	98	.79	1.9
Fall River.....	133,000	164	1.23	112	.84	1.5
Lowell.....	110,000	96	.87	41	.37	2.3
Lynn.....	105,000	131	1.25	28	.27	4.7
New Bedford.....	120,000	201	1.67	90	.75	2.2
Somerville.....	102,000	116	1.14	34	.33	3.4
Springfield.....	147,000	127	.86	63	.43	2.0
Worcester.....	196,000	185	.94	126	.64	1.5
Michigan:						
Detroit.....	1,335,000	2,182	1.63	1,023	.77	2.1
Flint.....	143,000	—	—	46	.32	—
Grand Rapids.....	162,000	158	.98	38	.23	4.2
Minnesota:						
Duluth.....	115,000	—	—	69	.60	—
Minneapolis.....	448,000	834	1.86	162	.36	5.1
St. Paul.....	250,000	281	1.12	158	.63	1.8
Missouri:						
Kansas City.....	383,000	—	—	286	.75	—
St. Louis.....	839,000	1,400	1.67	523	.62	2.7
New Jersey:						
Camden.....	133,000	194	1.46	60	.45	3.2
Newark.....	467,000	783	1.68	335	.72	2.3
Paterson.....	144,000	—	—	85	.59	—
Trenton.....	137,000	252	1.84	151	1.10	1.7
New York:						
Albany.....	120,000	—	—	105	.87	—
Buffalo.....	550,000	788	1.43	370	.67	2.1
New York.....	5,971,000	10,873	1.82	4,444	.74	2.4
Rochester.....	325,000	—	—	119	.37	—
Syracuse.....	197,000	240	1.22	66	.34	3.6
Yonkers.....	119,000	157	1.32	80	.67	2.0
Ohio:						
Akron.....	—	—	—	80	—	—
Canton.....	113,000	134	1.19	26	.23	5.2
Cincinnati.....	412,000	871	2.11	472	1.15	1.8
Cleveland.....	973,000	1,589	1.63	691	.71	2.3
Columbus.....	291,000	358	1.23	194	.67	1.8
Dayton.....	181,000	—	—	125	.69	—
Toledo.....	305,000	—	—	268	.88	—
Youngstown.....	169,000	266	1.57	59	.35	4.5
Oregon:						
Portland.....	—	—	—	116	—	—
Pennsylvania:						
Philadelphia.....	2,036,000	2,972	1.46	1,508	.74	2.0
Pittsburgh.....	666,000	588	.88	343	.52	1.7
Reading.....	115,000	56	.49	53	.46	1.1
Scranton.....	144,000	150	1.04	84	.58	1.8
Rhode Island:						
Providence.....	281,000	—	—	124	.44	—
Tennessee:						
Memphis.....	179,000	586	3.27	235	1.31	2.5
Nashville.....	138,000	486	3.52	161	1.17	3.0
Texas:						
Dallas.....	212,000	—	—	123	.58	—
El Paso.....	114,000	—	—	370	3.25	—
Fort Worth.....	164,000	116	.71	74	.45	1.6
Houston.....	—	500	—	178	—	2.8
Utah:						
Salt Lake City.....	136,000	—	—	58	.43	—
Virginia:						
Richmond.....	192,000	—	—	149	.78	—
Washington:						
Seattle.....	375,000	486	1.30	157	.42	3.1
Spokane.....	109,000	68	.62	32	.29	2.1
Tacoma.....	107,000	138	1.29	27	.25	5.1
Wisconsin:						
Milwaukee.....	536,000	—	—	318	.59	—
Total:						
47 cities.....	22,133,000	36,583	1.653	15,914	.719	2.3
70 cities.....	29,792,000	—	—	21,521	.722	—
49 cities.....	—	37,204	—	—	—	—
76 cities.....	—	—	—	23,160	—	—

¹ State census, 1925.² Includes nonresidents.

TULARAEMIA

City	Cases reported, 1927	Deaths registered, 1927	City	Cases reported, 1927	Deaths registered, 1927
District of Columbia:			Tennessee:		
Washington.....		1	Knnoxville.....	3	0
Iowa:			Memphis.....	1	0
Des Moines.....		8	Nashville.....	18	1
Michigan:			Texas:		
Detroit.....	1	0	Dallas.....	2	0
Ohio:					
Cincinnati.....	2	0			
Dayton.....	31	1			

TYPHOID FEVER

City	Estimated population, July 1, 1927	Estimated expectancy		1927				
		Number of years	Cases	Cases reported	Cases per 1,000 inhabitants	Deaths registered	Deaths per 1,000 inhabitants	Fatalities per 100 cases
Alabama:								
Birmingham.....	218,000	7	136	229	1.05	28	0.13	12.2
California:								
Long Beach.....	104,000	4	17	4	.04	2	.02	50.0
Los Angeles.....		7	108	63		11		17.5
Oakland.....	267,000	7	32	17	.06	6	.02	35.3
San Diego.....	115,000	7	8	4	.03	1	.01	25.0
San Francisco.....	576,000	7	71	59	.10	10	.02	16.9
Colorado:								
Denver.....	290,000	7	72	24	.08	8	.03	33.3
Connecticut:								
Bridgeport.....		7	17	5		1		20.0
Hartford.....	168,000	7	25	17	.10	3	.02	17.6
New Haven.....	185,000	7	67	18	.10	0		
Waterbury.....		7	9	7		0		
Delaware:								
Wilmington.....	126,000	7	33	10	.08	4	.03	40.0
District of Columbia:								
Washington.....	540,000	7	133	78	.14	10	.02	12.8
Florida:								
Miami.....	140,000	6	22	26	.19	6	.04	23.1
Tampa.....	108,000	5	51	38	.35	6	.06	15.8
Georgia:								
Atlanta.....	249,000	7	93	124	.50	35	.14	28.2
Illinois:								
Chicago.....	3,103,000	7	234	155	.05	23	.01	14.8
Indiana:								
Fort Wayne.....	103,000	7	37	16	.16	2	.02	12.5
Indianapolis.....	374,000	7	42	45	.12	5	.01	11.1
Iowa:								
Des Moines.....	149,000			24	.16	0		
Kansas:								
Kansas City.....	118,000	7	40	9	.08	0		
Louisiana:								
New Orleans.....	424,000	7	171	166	.39	36	.08	21.7
Maryland:								
Baltimore.....	819,000	7	201	124	.15	15	.02	12.1
Massachusetts:								
Boston.....	793,000	7	139	121	.15	9	.01	7.4
Cambridge.....	124,000	7	16	7	.06	1	.01	14.3
Fall River.....	133,000	7	36	28	.21	3	.02	10.7
Lowell.....	110,000	7	15	26	.24	3	.03	11.5
Lynn.....	105,000	7	19	15	.14	1	.01	6.7
New Bedford.....	120,000	7	18	16	.13	4	.03	25.0
Somerville.....	102,000	7	12	10	.10	2	.02	20.0
Springfield.....	147,000	7	11	11	.07	0		
Worcester.....	196,000	7	18	25	.13	6	.03	24.0
Michigan:								
Detroit.....	1,335,000	7	148	93	.07	16	.01	17.2
Flint.....	143,000	7	23	23	.16	3	.02	13.0
Grand Rapids.....	162,000	7	25	16	.10	3	.02	18.7

¹ State census, 1925.² Includes 1 nonresident.

TYPHOID FEVER—Continued

City	Estimated population, July 1, 1927	Estimated expectancy		1927				
		Number of years	Cases	Cases reported	Cases per 1,000 inhabitants	Deaths registered	Deaths per 1,000 inhabitants	Fatalities per 100 cases
Minnesota:								
Duluth.....	115,000	7	14	17	0.15	3	0.03	17.6
Minneapolis.....	448,000	7	56	40	.09	3	.01	7.5
St. Paul.....	250,000	7	48	17	.07	5	.02	29.4
Missouri:								
Kansas City.....	383,000	7	68	50	.13	11	.03	22.0
St. Louis.....	839,000	7	175	131	.16	16	.02	12.2
Nebraska:								
Omaha.....	219,000	7	15	13	.06	2	.01	15.4
New Jersey:								
Camden.....	133,000	7	32	14	.11	1	.01	7.1
Elizabeth.....		7	16	5		1		20.0
Jersey City.....	322,000	7	39	15	.05	0		
Newark.....	467,000	7	61	44	.09	6	.01	13.6
Paterson.....	144,000	7	20	18	.12	0		
Trenton.....	137,000	7	41	14	.10	3	.02	21.4
New York:								
Albany.....	120,000	7	42	31	.26	4	.03	12.9
Buffalo.....	550,000	7	88	43	.08	13	.02	30.2
New York.....	5,971,000	7	913	762	.13	78	.01	10.2
Rochester.....	325,000	7	45	49	.15	4	.01	8.2
Syracuse.....	197,000	7	32	29	.15	3	.02	10.3
Utica.....	103,000	7	20	23	.22	2	.02	8.7
Yonkers.....	119,000	7	9	4	.03	0		
Ohio:								
Akron.....		7	26	23		6		26.1
Canton.....	113,000	7	13	6	.05	0		
Cincinnati.....	412,000	7	65	73	.18	16	.04	21.9
Cleveland.....	973,000	7	101	75	.08	10	.01	13.3
Columbus.....	291,000	7	33	13	.04	6	.02	46.2
Dayton.....	181,000	7	25	12	.07	3	.02	25.0
Toledo.....	305,000	7	61	56	.18	9	.03	16.1
Youngstown.....	169,000	7	44	20	.12	4	.02	20.0
Oklahoma:								
Oklahoma City.....		6	54	49		9		18.4
Tulsa.....	150,000					12	.08	
Oregon:								
Portland.....		7	39	34		7		20.6
Pennsylvania:								
Erie.....		7	23	14		2		14.3
Philadelphia.....	2,036,000	7	341	139	.07	29	.01	20.9
Pittsburgh.....	666,000	7	96	55	.08	10	.02	18.2
Reading.....	115,000	7	19	5	.04	2	.02	40.0
Scranton.....	144,000	7	13	6	.04	0		
Rhode Island:								
Providence.....	281,000	7	38	34	.12	1	.00	2.9
Tennessee:								
Knoxville.....	102,000	8	100	100	.98	10	.10	10.0
Memphis.....	179,000	7	223	134	.75	26	.15	19.4
Nashville.....	138,000	7	110	176	1.28	22	.16	12.5
Texas:								
Dallas.....	212,000	7	94	70	.33	13	.06	18.6
El Paso.....	114,000	5	56	77	.68	10	.09	13.0
Fort Worth.....	164,000	7	35	100	.61	7	.04	7.0
Houston.....		7	45	48		16		33.3
San Antonio.....	211,000	7	48	34	.16	12	.06	35.3
Utah:								
Salt Lake City.....	136,000	7	42	51	.37	3	.02	5.9
Virginia:								
Norfolk.....	179,000	7	30	14	.08	2	.01	14.3
Richmond.....	192,000	7	68	46	.24	0		
Washington:								
Seattle.....	375,000	7	67	66	.18	4	.01	6.1
Spokane.....	109,000	7	27	16	.15	1	.01	6.2
Tacoma.....	107,000	7	22	12	.11	3	.03	25.0
Total:								
74 cities.....	30,243,000		5,454	4,258	.141	608	.020	14.3
76 cities.....	30,542,000					620	.020	
83 cities.....			5,791	4,506		661		14.7
85 cities.....						673		

* Includes nonresidents.

TYPHUS FEVER

City	Cases reported, 1927	Deaths registered, 1927	City	Cases reported, 1927	Deaths registered, 1927
Alabama:			Illinois:		
Birmingham.....	2	0	Chicago.....	1	0
Connecticut:			Missouri:		
New Haven.....	1	0	St. Louis.....	2	0
Delaware:			New York:		
Wilmington.....	1	1	New York.....	8	2
Florida:			Texas:		
Miami.....	1	0	Houston.....	1	0
Tampa.....	29	1	Virginia:		
Georgia:			Richmond.....	4	0
Atlanta.....	5	0			

UNDULANT FEVER

City	Cases reported, 1927	Deaths registered, 1927	City	Cases reported, 1927	Deaths registered, 1927
California:			Missouri:		
Long Beach.....	1	0	St. Louis.....		1
Illinois:			New York:		
Chicago.....	1	0	Utica.....	2	0

WHOOPIING COUGH

City	Estimated population, July 1, 1927	Average, 1922-1926	1927				
			Cases reported	Cases per 1,000 inhabitants	Deaths registered	Deaths per 1,000 inhabitants	Cases reported for each death registered
Alabama:							
Birmingham.....	218,000	250	282	1.29	26	0.12	10.8
California:							
Long Beach.....	104,000	142	246	2.37	0		22.7
Los Angeles.....		768	725		32		58.5
Oakland.....	267,000	224	995	3.73	17	.06	105.6
San Diego.....	115,000	400	845	7.35	8	.07	58.5
San Francisco.....	576,000	502	819	1.42	14	.02	
Colorado:							
Denver.....	290,000	869	197	.68	1	.00	197.0
Connecticut:							
Bridgeport.....		102	19		1		70.2
Hartford.....	168,000	269	281	1.67	4	.02	
New Haven.....	185,000	402	243	1.31	0		
Waterbury.....		56	18		0		
Delaware:							
Wilmington.....	126,000	100	65	.52	2	.02	32.5
District of Columbia:							
Washington.....	540,000	838	476	.88	17	.03	28.0
Florida:							
Miami.....	140,000		280	2.00	4	.03	70.0
Tampa.....	108,000	17	46	.43	5	.05	9.2
Georgia:							
Atlanta.....	249,000	117	301	1.21	34	.14	8.9
Illinois:							
Chicago.....	3,103,000	3,606	4,736	1.53	85	.03	55.7
Indiana:							
Fort Wayne.....	103,000	106	122	1.18	1	.01	122.0
Indianapolis.....	374,000	1,044	619	1.66	14	.04	44.2
Iowa:							
Des Moines.....	149,000				11	.07	
Kansas:							
Kansas City.....	118,000	350	234	1.98	0		
Louisiana:							
New Orleans.....	424,000	222	240	.57	38	.09	6.3
Maryland:							
Baltimore.....	819,000	2,820	2,394	2.92	60	.07	39.9
Massachusetts:							
Boston.....	793,000	1,971	1,123	1.42	31	.04	36.2
Cambridge.....	124,000	561	276	2.23	4	.03	69.0
Fall River.....	133,000	171	103	.77	3	.02	34.3
Lowell.....	110,000	74	76	.69	1	.01	76.0
Lynn.....	105,000	191	146	1.39	3	.03	48.7
New Bedford.....	120,000	116	47	.39	0		
Somerville.....	102,000	114	141	1.38	1	.01	141.0
Springfield.....	147,000	223	273	1.86	6	.04	45.5
Worcester.....	196,000	311	275	1.40	4	.02	68.7

† State census, 1925.

WHOOPIING COUGH—Continued

City	Estimated population, July 1, 1927	Average, 1922-1926	1927				
			Cases reported	Cases per 1,000 inhabitants	Deaths registered	Deaths per 1,000 inhabitants	Cases reported for each death registered
Michigan:							
Detroit.....	1,335,000	2,724	3,646	2.73	61	0.05	59.8
Flint.....	143,000	347	162	1.13	11	.08	14.7
Grand Rapids.....	162,000	503	174	1.07	2	.01	87.0
Minnesota:							
Duluth.....	115,000	162	110	.96	2	.02	55.0
Minneapolis.....	448,000	116	68	.15	10	.02	6.8
St. Paul.....	250,000	833	329	1.32	1	.00	329.0
Missouri:							
Kansas City.....	383,000	476	526	1.37	21	.05	25.0
St. Louis.....	839,000	1,113	1,372	1.64	45	.05	30.5
Nebraska:							
Omaha.....	219,000	78	39	.18	2	.01	19.5
New Jersey:							
Camden.....	133,000	88	36	.27	5	.04	7.2
Elizabeth.....	193	193	322		9		35.8
Jersey City.....	322,000	88	40	.12	14	.04	2.9
Newark.....	467,000	1,895	2,143	4.59	31	.07	69.1
Paterson.....	144,000	321	368	2.56	3	.02	122.7
Trenton.....	137,000	122	196	1.70	10	.07	19.6
New York:							
Albany.....	120,000	280	248	2.07	5	.04	49.6
Buffalo.....	550,000	1,037	733	1.33	10	.02	73.3
New York.....	5,971,000	5,168	6,052	1.01	279	.05	21.7
Rochester.....	325,000	369	236	.73	6	.02	39.3
Syracuse.....	197,000	663	304	1.54	1	.01	304.0
Utica.....	103,000	254	59	.57	0		
Yonkers.....	119,000	125	149	1.25	2	.02	74.5
Ohio:							
Akron.....		1,064	283		2		141.5
Canton.....	113,000	269	143	1.27	1	.01	143.0
Cincinnati.....	412,000	564	134	.33	12	.03	11.2
Cleveland.....	973,000	2,499	1,439	1.48	17	.02	84.6
Columbus.....	291,000	234	476	1.64	13	.04	36.6
Dayton.....	181,000	50	27	.15	13	.07	2.1
Toledo.....	305,000	878	1,025	3.36	7	.02	146.4
Youngstown.....	169,000	412	237	1.40	2	.01	118.5
Oklahoma:							
Oklahoma City.....		145	20		1		20.0
Tulsa.....	150,000				2	.01	
Oregon:							
Portland.....		145	167		10		16.7
Pennsylvania:							
Erie.....		434	81		3		27.0
Philadelphia.....	2,036,000	2,470	1,479	.73	31	.02	47.7
Pittsburgh.....	666,000	1,651	695	1.04	15	.02	46.3
Reading.....	115,000	340	149	1.30	1	.01	149.0
Scranton.....	144,000	147	163	1.13	4	.03	40.7
Rhode Island:							
Providence.....	281,000	180	149	.53	14	.05	10.6
Tennessee:							
Knoxville.....	102,000	129	114	1.12	15	.15	7.6
Memphis.....	179,000	351	491	2.74	26	.15	18.9
Nashville.....	138,000	126	130	.94	8	.06	16.2
Texas:							
Dallas.....	212,000	407	144	.68	5	.02	28.8
El Paso.....	114,000	127	264	2.32	6	.05	44.0
Fort Worth.....	164,000		61	.37	3	.02	20.3
Houston.....			20		3		6.7
San Antonio.....	211,000				8	.04	
Utah:							
Salt Lake City.....	136,000	703	564	4.15	0		
Virginia:							
Norfolk.....	179,000	1279	430	2.40	2	.01	215.0
Richmond.....	192,000	161	215	1.12	23	.12	9.3
Washington:							
Seattle.....	375,000	694	707	1.89	10	.03	70.7
Spokane.....	109,000	237	117	1.07	2	.02	58.5
Tacoma.....	107,000	151	105	.98	3	.03	35.0
Wisconsin:							
Milwaukee.....	536,000	2,174	1,480	2.76	15	.03	98.7
Total:							
72 cities.....	30,264,000	47,911	43,368	1.433	1,145	.038	37.9
77 cities.....	31,078,000				1,173	.038	
83 cities.....			45,364				
86 cities.....					1,234		

* Includes nonresidents.

* 4 years only.

WHOOPIED TOUGH—Continued

**TREASURY DEPARTMENT
UNITED STATES PUBLIC HEALTH SERVICE**

HUGH S. CUMMING, SURGEON GENERAL

STUDIES ON OXIDATION-REDUCTION

**XIV. EQUILIBRIUM POTENTIALS OF 2,6-DIBROMOBENZENONE
INDOPHENOL-2'-SODIUM SULPHONATE, 2,6-DIBROMO-
BENZENONE INDOPHENOL-3'-SODIUM SULPHONATE,
2,6-DICHLOROBENZENONE INDO-2'-CHLOROPHENOL,
AND 2,6-DIMETHYLBENZENONE INDOPHENOL**

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STUDIES ON OXIDATION-REDUCTION¹

XIV. EQUILIBRIUM POTENTIALS OF 2,6-DIBROMOBENZENONE INDOPHENOL-2'-SODIUM SULPHONATE, 2,6-DIBROMOBENZENONE INDOPHENOL-3'-SODIUM SULPHONATE, 2,6-DICHLOROBENZENONE INDOPHENOL-2'-CHLOROPHENOL, AND 2,6-DIMETHYLBENZENONE INDOPHENOL

INTRODUCTION

Even a superficial study of the indophenols discloses the many interesting possibilities offered by this type of compound in elucidating the relations of structure and substitution to equilibrium potentials, dissociations, color, tautomerism, solubility, stability, reactivity, etc. Previous investigations in this laboratory, incidental to the search for satisfactory oxidation-reduction indicators of the indophenol type, have touched in more or less detail upon these relations. The work we now present furnishes some completing data and brings to light certain unsuspected new aspects. Incidentally, we shall take this occasion to bring together the various data accumulated in this laboratory on the effects of simple substitution, with the exception of substitutions of amino groups, which are reserved for a future paper.

The new indophenols studied are the four compounds named in the title. They are all rather easily prepared and have useful properties as indicators of oxidation-reduction. The potentials of three of the compounds lie on the electropositive end of the series, two of them extending the range beyond the limit previously reached with satisfactory reversible indicators.

EXPERIMENTAL PROCEDURE

The electrode potential measurements were carried out at 30° C. ± 0.02 with the equipment previously described (1928). The ultimate working standard was the potential of the hydrogen electrode in M/20 potassium acid phthalate, to which was assigned the value -0.2386 volt at 30° C. The reference electrode was the saturated KCl-calomel cell, which was always checked against the above standard. Liquid junctions were made with saturated KCl solution and the liquid junction potentials were ignored.

The buffer solutions employed had the compositions shown in Table 4 of Paper VIII of the series Studies on Oxidation-Reduction. In subsequent tables in this paper, solutions numbered 1/2 refer to

¹ Wallace L. Hall, one of the co-authors of this article, resigned from the Public Health Service December 12, 1927.

buffer made by mixing equal volumes of solutions having adjacent numbers. The buffers were measured with the hydrogen electrode shortly before or after use in a dilution of 50 c. c. buffer + 5 c. c. water, this being a first approximation to the pH of the mixture of 50 c. c. buffer + 5 c. c. aqueous dye solution used in the oxidation-reduction electrode measurements. The concentration of the buffer was about 0.1 molar. The aqueous dye solution was of about 0.005 M concentration, which was diluted to 0.00045 M when mixed with buffer.

The procedure followed in determining the characteristic electrode data of the new indophenols was the same as that described in earlier papers of this series. Briefly stated, it consisted of the following steps:

(1) An electrometric titration was made of the oxidant with a reducing agent (leuco-indigo disulphonate) at constant pH in a well-buffered solution. This furnished the data for calculating from the simple electrode equation

$$E_h = E'_0 - 0.03003 \log \frac{[\text{Reductant}]}{[\text{Oxidant}]} \text{-----} (1)$$

the characteristic constant, E'_0 , of the system at the known pH of the buffer.

(2) There was then prepared in a reservoir under nitrogen an approximately equimolecular mixture of oxidant and reductant in water. By observing the potential of a sample of this mixture in the same buffer in which the preceding titration had been made, it was possible to calculate the exact percentage oxidation or reduction of the mixture and thus the correction necessary to convert E_h , the observed potential, to E'_0 , that potential corresponding to an *exactly* equimolecular mixture of oxidant and reductant.

(3) Measured quantities of the fixed mixture were then added to various buffers of different pH values in order to determine the variation of potential with change in pH. These observed electrode potentials plus the correction mentioned gave the characteristic E'_0 values at the various pH values studied. The data, when plotted on E'_0 :pH coordinates, yield a curve which is defined by the electrode equation for indophenols (see Paper III) viz:

$$E'_0 = E_0 + 0.03006 \log [Kr_1 Kr_2 [H^+] + Kr_1 [H^+]^2 + [H^+]^3] - 0.03006 \log [K_0 + [H^+]] \text{--} (2)$$

(4) The dissociation constants in this equation were determined graphically as follows: Equation (2) prescribes that the various linear sections of the E'_0 :pH curve shall have slopes, $\frac{-dE}{dpH}$, which are multiples of 0.03006 (0.03 for short) at 30° C. Therefore the experimental points on the chart were joined by straight lines of

0.03, 0.06, or 0.09 slope, as the case might be, except at the deflections in the curves where the changes in slope occurred. The pH of the intersection of each pair of adjoining principal slopes was determined graphically. The values thus obtained corresponded to the pK , $(\log \frac{1}{K})$, values of the dissociations encountered experimentally.

As has been shown in preceding papers of this series, deflections in the E'_0 :pH curve denote the presence of detectable dissociations either in the oxidant or reductant. To determine whether a particular dissociation is in the oxidant or in the reductant we have utilized a relation which seems to be of general fundamental validity. The principle may be stated as follows: In the E'_0 :pH curve, the bend with a convexity in the direction of negative e. m. f. always corresponds to a dissociation in the reductant; and vice versa, a deflection with a concavity toward negative e. m. f. denotes a dissociation in the oxidant. That is, when the change in slope (defining slope as $\frac{-dE'}{dpH}$) is negative, the dissociation causing the change is assignable to the reductant; when the change is positive, the corresponding dissociation belongs to the oxidant.

(5) K_o , the dissociation constant of the oxidant was also determined independently by the colorimetric method of Salm (1907).

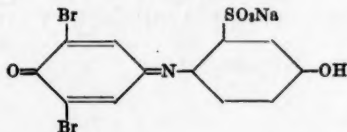
(6) E_o , the "normal" potential (i. e., the value of E'_0 at $pH=0$) was calculated from E'_0 values, obtained in acid regions unaffected by dissociations, by means of a simplification of equation (2). When $[H^+]$ is of a higher order of magnitude than K_o , Kr_1 , and Kr_2 , equation (2) reduces to

$$E'_0 = E_o + 0.0601 \log [H^+] \text{-----} (3)$$

(7) With all the necessary constants at hand, equation (2) was then evaluated numerically to give the calculated E'_0 :pH curve.

2,6-DIBROMOBENZENONE INDOPHENOL-2'-SODIUM SULPHONATE ¹

(Phenol *m*-sulphonate indo-2,6-dibromophenol)



*Preparation.*²—The synthesis was readily accomplished by the alkaline condensation of 2,6-dibromoquinone-chloroimide with phenol-*m*-sulphonate. The product was purified by salting out with NaCl.

¹ See Paper XIII, Studies on Oxidation-Reduction, regarding nomenclature of the indophenols. The constitutional structures of the compounds described here are tentative conveniences and are not intended to express a conclusion as to the predominant tautomer.

² Detailed descriptions of the preparation of the indophenols discussed here will be found in Paper XIII.

The compound, however, was not salted out as readily as the corresponding ortho-derivative.

Analysis.—Nitrogen, determined by combustion, showed the compound to be 88.8 per cent pure. A titration with alkaline hydroxylamine¹ indicated 89.2 per cent indophenol. Titrations with titanous chloride were unsatisfactory; about 81 per cent dye was found and there was definite evidence of loss of reducible material during the titration.

Acid-base properties.—The sodium salt of phenol-*m*-sulphonate indo-2,6-dibromophenol is readily soluble in water yielding a deep greenish-blue solution. In Clark and Lubs' buffers of pH 1.2, 3.0, and 5.0 it has a purplish red color. At pH 1.2 a slow fading becomes evident in a few minutes. In 20 per cent and 35 per cent HCl, its color is red with less of the purple tint, but the fading is very rapid. In "superacid" buffer (*cf.* Conant and Hall, 1927), i. e. 1.0 M H₂SO₄ in glacial acetic acid, its color is red and much more stable. Precipitation, such as occurs even in mildly acid solutions with the other indophenols is not evident with this compound.

At pH 7.0 this dye colors the solution purple. In alkaline solutions, the color is greenish-blue and is relatively stable from pH 8 to 10. In 0.2 M and 1.0 M NaOH the greenish-blue color lasts but a few minutes, giving way to a violet coloration which persists for at least several hours. In 10 per cent NaOH and stronger alkaline solutions, it produces a yellow color which fades, followed by a pale violet tinge.

Electrometric titrations.—Two oxidation-reduction titrations were made with approximately 0.00125 molar leuco-indigo disulphonate, one at pH 7.398 and the other at pH 8.645 (using 5. c. c. 0.005 molar oxidant added to 50 c. c. buffer). The data are given in Tables 1 and 2. The endpoint in the first case was 18.9 c. c. indigo and in the second 19.4 c. c. This disparity is without significance because the two titrations were not performed with identical or exactly equivalent solutions. In both titrations, the agreement between the experimental and theoretical curves was satisfactory except at the extremes.

¹ By the method of Gibbs, details to be published later.

TABLE 1.—*Phenol m-sulphonate indo-2,6-dibromophenol titrated with approximately 0.00125 M leuco-indigo disulphonate at pH 7.398*

[Titration time, 40 min.]

Indigo	Reduction	$0.03006 \times \log \frac{[Sr]}{[So]}$	E_h	E'_o	Deviation from 0.2521
c. c.	Per cent				
2.....	10.58	-0.0279	0.2803	0.2524	+0.0003
3.....	15.87	-.0218	.2741	.2523	+ .0002
4.....	21.16	-.0173	.2694	.2521	.0000
5.....	26.45	-.0134	.2655	.2521	.0000
6.....	31.75	-.0100	.2621	.2521	.0000
7.....	37.04	-.0069	.2589	.2520	-.0001
8.....	42.33	-.0040	.2560	.2520	-.0001
9.....	47.62	-.0012	.2533	.2521	.0000
10.....	52.91	+.0015	.2505	.2520	-.0001
11.....	58.20	.0043	.2477	.2520	-.0001
12.....	63.50	.0072	.2448	.2520	-.0001
13.....	68.79	.0103	.2418	.2521	.0000
14.....	74.08	.0137	.2383	.2520	-.0001
15.....	79.37	.0175	.2345	.2520	-.0001
16.....	84.66	.0223	.2298	.2521	.0000
17.....	89.95	.0286	.2238	.2524	+ .0003
18.....	95.24	.0391	.2145	(.2536)	+ .0015
18.9.....	100.00				
			Average=0.2521		

TABLE 2.—*Phenol m-sulphonate indo-2,6-dibromophenol titrated with approximately 0.00125 M leuco-indigo disulphonate at pH 8.645*

[Titration time, 45 min.]

Indigo	Reduction	$0.03006 \times \log \frac{[Sr]}{[So]}$	E_h	E'_o	Deviation from 0.1815
c. c.	Per cent				
2.....	10.31	-0.0283	0.2104	(0.1821)	(+0.0006)
3.....	15.46	-.0222	.2040	.1818	+0.0003
4.....	20.62	-.0176	.1994	.1818	+ .0003
5.....	25.77	-.0138	.1954	.1816	+ .0001
6.....	30.93	-.0105	.1919	.1814	-.0001
7.....	36.08	-.0075	.1890	.1815	.0000
8.....	41.24	-.0046	.1861	.1815	.0000
9.....	46.39	-.0019	.1834	.1815	.0000
10.....	51.55	+.0008	.1806	.1814	-.0001
11.....	56.70	.0035	.1779	.1814	-.0001
12.....	61.86	.0063	.1751	.1814	-.0001
13.....	67.01	.0093	.1722	.1815	.0000
14.....	72.17	.0124	.1690	.1814	-.0001
15.....	77.32	.0160	.1653	.1813	-.0002
16.....	82.48	.0202	.1612	.1814	-.0001
17.....	87.63	.0256	.1560	.1816	+ .0001
18.....	92.79	.0333	.1483	.1816	+ .0001
19.4.....	100.00				
			Average=0.1815		

Relation of E'_o to pH.—The data were determined with a 0.005 molar dye solution (final concentration, 0.00045 M) approximately 80 per cent reduced. The observed values of electrode potentials are recorded in Table 3. It should be noted that the potentials in the more acid region (at pH 3.809 and 4.846) were stable for at least 30 minutes. In the more alkaline range there occurred rapid negative drift in potential, hence initial potentials were selected as the most probable. In the intermediate zone there occurred a brief negative drift succeeded by a plateau value lasting more than 30 minutes; in

such cases the plateau values were selected. The deviations shown in the last column of Table 3 reveal a fair degree of concordance between the observed values thus obtained and the calculated values.

It is interesting to note that in the case of buffers 22 and 22½ the deviations of about 2.5 mv. would not have appeared if initial values had been chosen. However, well-defined plateau values occurred in duplicate determinations, therefore, to preserve consistency, these plateau values were retained.

TABLE 3.—*Phenol m-sulphonate indo-2,6-dibromophenol. Relation of E' to pH*

$$E_0 = 0.6906; K_0 = 3.981 \times 10^{-8}; K_{R1} = 7.586 \times 10^{-8}; K_{R2} = 1.75 \times 10^{-8}$$

$$pK_0 = 7.40 \quad pK_{R1} = 7.12 \quad pK_{R2} = 8.93$$

Buffer No.	pH	E' (calc.)	E' (found)	Deviation
7.....	3.809	0.4616	0.4617	+0.0001
9.....	4.846	.3992	.3985	-.0007
11.....	5.786	.3430	.3428	-.0002
13.....	6.079	.3257	.3250	-.0007
14½.....	6.619	.2943	.2931	-.0012
15.....	6.800	.2840	.2847	+.0007
15½.....	7.071	.2688	.2691	+.0003
16.....	7.392	.2513	.2516	+.0003
16½.....	7.634	.2380	.2380	.0000
20.....	8.080	.2137	.2142	+.0005
20½.....	8.272	.2033	.2029	-.0004
21.....	8.420	.1957	.1946	-.0011
21½.....	8.539	.1895	.1870	-.0025
22.....	8.645	.1842	.1815	-.0027
22½.....	8.977	.1689	.1682	-.0007
23.....	9.297	.1556	.1556	.0000
24.....	9.710	.1407	.1404	-.0003
26.....	11.48	.0855	.0879	+.0024

The experimental data are plotted as circles along curve C in Figure 1. First to be noted in this connection is that from pH 5.2 onward this is the *most electropositive of all the indophenol curves* we have studied up to the present.

Another unusual feature of considerable theoretical importance is the sequence of slopes in the curve. Proceeding from acid to alkaline regions, there occurs a 0.06 slope, a 0.03, a 0.06 and finally a 0.03 slope. On the other hand, in all the other indophenols hitherto studied, the sequence of slopes is 0.06, 0.09, 0.06, and 0.03. Thus, we find the customary 0.09 slope of the indophenols changed in this *m-sulphonate* derivative to 0.03. The significance of the change will be discussed presently.

In Figure 1 the 0.03 slope is shown by the broken line between pK_1 and pK_0 on curve C. Owing to the reduction of the drawing, curve C appears to have a uniform 0.06 slope down to pH 8.5. However, the section of the curve between pH 4 and 6.5 shows a definite negative offset of about 9 mv. from another 0.06 slope between pH 7.5 and 8.5. This offset is supported by too many experimental values to be purely fortuitous. From the geometry of the curve, a 0.03 or a zero slope is the only one possible for joining the two 0.06 sections. The zero slope is eliminated because it demands the existence of two

additional dissociations near pK 7.5, which the constitution of the compound does not permit. The 0.03 slope, however, fulfills all the requirements.

Dissociations.—Judging from the color change in “superacid” solutions and from our knowledge of sulphonates in general, it is safe to say that the sulfonic acid group in this compound is so strong that it is ordinarily completely dissociated. This dissociation is neglected in the formulation of the electrode data because it occurs outside the pH range of our electrometric studies.

The phenolic dissociation (pK_0) of the oxidant was determined colorimetrically by the Salm method and found to be 7.35, a value

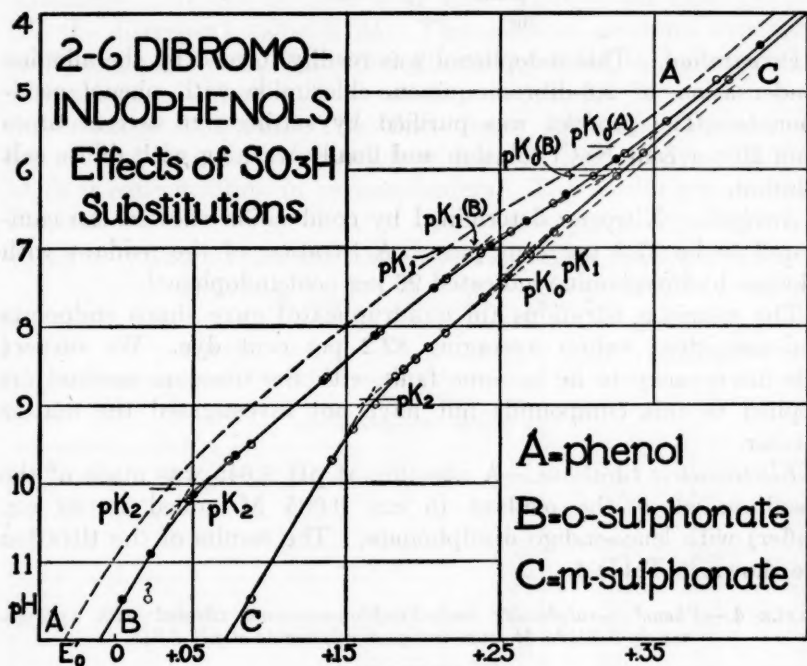


FIG. 1

which is in fair agreement with $pK_0 = 7.40$, the final value obtained by analysis of the $E'_0 : pH$ data. The dissociation of the same group in the reductant was found to be $pK_{r1} = 7.12$. The dissociation of the hydroxyl group created in the reductant has the value $pK_{r2} = 8.93$.

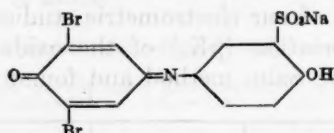
Attention is directed to a relation between pK_0 and pK_{r1} which is a corollary to the changed sequence of the slopes characteristic of the $E'_0 : pH$ curve for this compound. We find here that K_{r1} is greater than K_0 whereas in all the other indophenols studied this relation is reversed.

The effects of substitution will be discussed in more detail in a later section.

Phenol *m*-sulphonate indo-2,6-dibromophenol recommends itself as a useful indicator of oxidation-reduction because of its position on the rH scale, its solubility, and its relative stability in the physiological range of pH. As an aid to its use, we give in Table 12 the values of E'_0 between pH 5 and 9 at intervals of 0.2 pH.

2,6-DIBROMOBENZENONE INDOPHENOL-3'-SODIUM SULPHONATE

(Phenol *o*-sulphonate indo-2,6-dibromophenol)



Preparation.—This indophenol was readily formed by the alkaline condensation of 2,6-dibromoquinone-chlorimide with phenol *o*-sulphonate. The product was purified by salting out several times from 20 per cent NaCl solution and finally washing with dilute salt solution.

Analysis.—Nitrogen determined by combustion showed the compound to be 97.5 per cent pure. A titration of the oxidant with alkaline hydroxylamine indicated 96 per cent indophenol.

The titanium titrations (in quadruplicate) gave sharp endpoints and consistent values averaging 82.2 per cent dye. We suspect this discrepancy to lie in some fault with the titanium method (as applied to this compound) but have not investigated the matter further.

Electrometric titrations.—A titration at pH 8.645 was made of the disodium salt of the oxidant (5 c.c. 0.005 M added to 50 c.c. buffer) with leuco-indigo disulphonate. The results of the titration are shown in Table 4.

TABLE 4.—Phenol *o*-sulphonate indo-2,6-dibromophenol titrated with approximately 0.00125 M leuco-indigo disulphonate at pH 8.645

[Titration time, 52 min.]

Indigo	Reduction	$0.03006 \times \log \frac{[Sr]}{[So]}$	E_h	E'_0	Deviation from 0.1366
c. c.	Per cent				
2	10.42	-0.0281	0.1654	(0.1373)	(+0.0007)
3	15.62	-0.0220	.1590	.1370	+.0004
4	20.83	-0.0174	.1543	.1369	+.0003
5	26.04	-0.0136	.1504	.1368	+.0002
6	31.25	-0.0103	.1469	.1366	.0000
7	36.46	-0.0073	.1438	.1365	-.0001
8	41.67	-0.0044	.1409	.1365	-.0001
9.03	47.06	-0.0015	.1381	.1366	.0000
10	52.08	+0.0011	.1354	.1365	-.0001
11	57.30	.0038	.1327	.1365	-.0001
12	62.50	.0067	.1298	.1365	-.0001
13	67.72	.0097	.1267	.1364	-.0002
14	72.92	.0129	.1235	.1364	-.0002
15	78.13	.0167	.1198	.1365	-.0001
16	83.34	.0210	.1154	.1364	-.0002
17	88.55	.0267	.1096	.1363	-.0003
18	93.75	.0353	.1015	.1368	+.0002
19.2	100.00				
			Average = 0.1366		

Since the indigo and indophenol systems overlap somewhat, a precise determination of the endpoint was difficult. Experimentally, an endpoint was reached at 19.3 c. c. indigo, but calculation of the results on this basis yielded a progressively increasing divergence in the value of the constant, E'_0 . Better concordance was obtained by taking 19.2 c. c. for the endpoint, which gave for E'_0 the average value 0.1366 at pH 8.645. A titration of 0.00009 M dye made at pH 8.668 gave a value of 0.1355.

An attempt was made to titrate the reductant. The latter was prepared by reducing an aqueous solution of the dye with platinized asbestos. However, the effort to avoid over-reduction was apparently unsuccessful, for the titration with ferricyanide at pH 8.645 gave for E'_0 the discrepant value 0.134. This confirms previous experience on the complete reduction of indophenols by catalytic hydrogenation with platinized asbestos.

Relation of E'_0 to pH.—The first series of measurements, for purposes of orientation, was made with partly reduced dye of 0.00009 M final concentration in various buffers. The results are shown in Table 5.

TABLE 5.—*Phenol o-sulphonate indo-2,6-dibromophenol. Relation of E'_0 to pH*

$$E_0 = 0.6834 \quad K_0 = 8.51 \times 10^{-7} \quad K_{R1} = 9.77 \times 10^{-8} \quad K_{R2} = 6.03 \times 10^{-11} \\ pK_0 = 6.07 \quad pK_{R1} = 7.01 \quad pK_{R2} = 10.22$$

Buffer No.	pH	E'_0 (calc.)	E'_0 (observed)	Deviation
FIRST SERIES (Dye concentration = 0.00009 M)				
1.....	1.109	0.6167	(0.6227)	(+0.0060)
3.....	2.011	.5625	.5612	-.0013
4.....	2.491	.5336	.5322	-.0014
5.....	2.910	.5084	.5092	+.0008
8.....	4.394	.4190	.4184	-.0006
11.....	5.855	.3261	.3252	-.0009
13.....	6.308	.2934	.2922	-.0012
14.....	6.662	.2669	.2667	-.0002
15.....	6.970	.2442	.2435	-.0007
16.....	7.511	.2067	.2063	-.0004
20.....	8.113	.1683	.1686	+.0003
22.....	8.668	.1346	.1355	+.0009
23½.....	9.642	.0786	.0773	-.0013
24.....	10.13	.0539	.0508	-.0036
24½.....	10.90	.0227	.0228	+.0001
26.....	11.48	.0036	.0040	+.0004
SECOND SERIES (Dye concentration = 0.00045 M)				
5.....	2.860	0.5114	0.5122	+0.0008
6.....	3.274	.4866	.4865	-.0001
7.....	3.809	.4543	.4545	+.0002
9.....	4.846	.3913	.3909	-.0004
10.....	5.379	.3579	.3579	.0000
11.....	5.786	.3309	.3308	-.0001
13.....	6.079	.3103	.3101	-.0002
14.....	6.429	.2843	.2843	.0000
15.....	6.800	.2567	.2564	-.0003
15½.....	7.071	.2369	.2369	.0000
16.....	7.392	.2147	.2143	-.0004
20.....	8.080	.1703	.1706	+.0003
22.....	8.645	.1359	.1365	+.0006
23½.....	9.496	.0865	.0874	+.0009
24.....	9.710	.0749	.0748	-.0001
24½.....	10.23	.0494	.0479	-.0015
26.....	11.48	.0036	(.021)	(+.017)

Rapid positive drift in potentials occurred in the acid region down to pH 2.5. This probably accounts for the extreme positive deviation of our observed value at pH 1.109. At other points on the pH scale, the drift was negative; and in the intermediate ranges it amounted to less than 1 mv. per hour. In the most alkaline buffer, pH 11.48, the negative drift was more rapid, about 2 mv. per hour. Where the drift was slow, the recognizable plateau value was selected; but where rapid potential change occurred, the plateau stage was assumed to be very brief and the initial potential value was chosen. The results are plotted in Figure 1, curve B, as solid circles.

A second series of measurements was made with the dye solution five times as strong. The results are shown in the second part of Table 5; they are plotted as open circles in curve B, Figure 1. The deviations in the second series were in general much smaller than those in the first, possibly because of the greater poisoning ability of the more concentrated dye solutions.

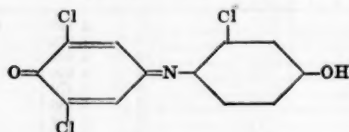
Curve B, Figure 1, was calculated by means of the theoretical equation 2 with the characteristic constants of the system. It should be noted that the E'_0 : pH curve of the *o*-sulphonate indophenol is "normal" in so far as there occurs the usual sequence of typical slopes, that is, 0.06, 0.09, 0.06, and 0.03, going from acid to alkaline regions.

Dissociations.—The dissociation of the phenolic hydrion in the oxidant was determined colorimetrically. The value 6.1 obtained for pK_0 compares well with the final value 6.07 found to fit the curve. The two dissociations in the reductant were found from the intersections of the slopes to be $pK_{r1} = 7.01$ and $pK_{r2} = 10.22$.

Phenol *o*-sulphonate indo-2,6-dibromophenol recommends itself as a useful oxidation-reduction indicator in the more positive range of the indophenols because of its solubility, relative stability over a wide range of pH, and ease of preparation. In Table 12 are given the calculated values of the system between pH 5.0 and 9.0 at intervals of 0.2 pH.

2,6-DICHLOROBENZENONE INDO-2'-CHLOROPHENOL

(*m*-Chlorophenol indo-2,6-dichlorophenol)



Preparation.—This compound was prepared by the alkaline condensation of *m*-chlorophenol with 2,6-dichloroquinone-chloroimide. The dye, after being salted out, was washed several times with half-saturated NaCl solution.

Analysis.—Nitrogen determined by combustion showed the compound to be 84.7 per cent pure. A reduction with alkaline hydroxylamine indicated 85.2 per cent indophenol. Titrations with titanous chloride in alkaline tartrate solution indicated 84.4 per cent dye.

Electrometric titrations.—The oxidant was titrated at pH 8.646 with approximately 0.00125 molar leuco-indigo disulphonate giving the results shown in Table 6. The potentials obtained were quite stable, but the values at both extremes of the titration curve deviated about 1 mv. from the calculated. Another titration at pH 7.398 made with new solutions gave the results shown in Table 7. In this experiment the potentials obtained were more concordant throughout the entire curve.

TABLE 6.—*m*-Chlorophenol indo-2,6-dichlorophenol titrated with approximately 0.00125 M leuco-indigo disulphonate at pH 8.646

Indigo	Reduction	$0.03006 \times \log \frac{[Sr]}{[So]}$	E_h	E'	Deviation from 0.1515
c. c.	Per cent				
2.....	11.56	-0.0266	0.1785	+0.1519	+0.0004
3.....	17.34	-.0204	.1721	.1517	+.0002
4.....	23.12	-.0157	.1673	.1516	+.0001
5.04.....	29.13	-.0116	.1632	.1516	+.0001
6.....	34.68	-.0083	.1598	.1515	.0000
7.....	40.46	-.0050	.1564	.1514	-.0001
8.....	46.24	-.0020	.1534	.1514	-.0001
9.....	52.02	+.0011	.1505	.1516	+.0001
10.....	57.80	.0041	.1473	.1514	-.0001
11.....	63.58	.0073	.1441	.1514	-.0001
12.....	69.36	.0107	.1408	.1515	.0000
13.....	75.15	.0145	.1371	.1516	+.0001
14.....	80.93	.0189	.1325	.1514	-.0001
15.....	86.71	.0245	.1263	.1508	-.0007
17.30.....	100.00				
Average=0.1515					

TABLE 7.—*m*-Chlorophenol indo-2,6-dichlorophenol titrated with approximately 0.00125 M leuco-indigo disulphonate at pH 7.398

[Titration time, 37 minutes]

Indigo	Reduction	$0.03006 \times \log \frac{[Sr]}{[So]}$	E_h	E'	Deviation from 0.2256
c. c.	Per cent				
1.....	6.89	-0.0340	0.2596	0.2256	0.0000
2.....	13.79	-.0239	.2496	.2257	+.0001
3.....	20.69	-.0175	.2432	.2257	+.0001
4.....	27.59	-.0126	.2383	.2257	+.0001
5.....	34.48	-.0084	.2340	.2256	.0000
6.....	41.38	-.0046	.2301	.2255	-.0001
7.....	48.27	-.0008	.2264	.2256	.0000
8.....	55.17	+.0027	.2229	.2256	.0000
9.....	62.06	.0064	.2191	.2255	-.0001
10.....	68.96	.0104	.2151	.2255	-.0001
11.....	75.86	.0150	.2106	.2256	.0000
12.....	82.76	.0205	.2051	.2256	.0000
13.....	89.66	.0282	.1972	.2254	-.0002
14.5.....	100.00				
Average=0.2256					

Relation of E'_0 to pH.—The first series of orienting measurements was made with 0.00045 M dye reduced about 56 per cent. The results corrected to 50 per cent reduction are shown in the first part of Table 8; the values are plotted as solid circles along curve E, in Figure 2. In the second series the same concentration of dye was used (about 42 per cent reduced); more attention was given to

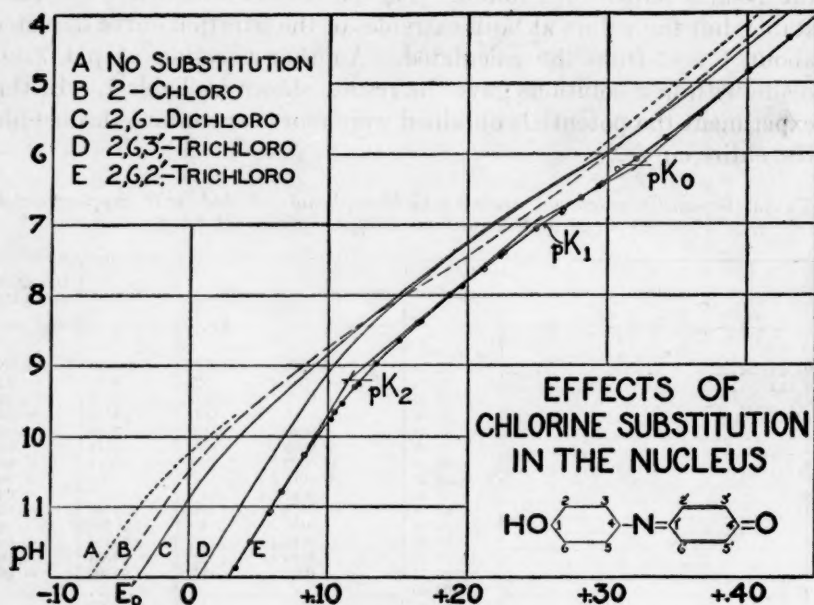


FIG. 2

values at the deflections of the E'_0 :pH curve. The data are recorded in the second section of Table 8, and are plotted as open circles along curve E, in Figure 2. The agreement between the two series, measured about a month apart, is fairly good.

The theoretical values for this system are presented by curve E, Figure 2, which was calculated by means of equation 2 and the characteristic constants.

TABLE 8.—*m*-Chlorophenol indo-2,6-dichlorophenol. Relation of E'_0 to pH

$$E_0 = 0.6919 \quad K_0 = 6.89 \times 10^{-7} \quad K_{R1} = 1.04 \times 10^{-7} \quad K_{R2} = 6.20 \times 10^{-10}$$

$$pK_0 = 6.16 \quad pK_{R1} = 6.89 \quad pK_{R2} = 9.21$$

FIRST SERIES

Buffer No.	pH	E'_0 (calc.)	E'_0 (found)	Deviation
1.....	1.072	0.6275	0.6269	-0.0006
5.....	2.855	.5203	.5208	+ .0005
6.....	3.251	.4965	.4964	- .0001
7.....	3.787	.4639	.4640	+ .0001
8.....	4.360	.4296	.4294	- .0002
9.....	4.811	.4022	.4020	- .0002
10.....	5.418	.3643	.3653	+ .0010
11.....	5.765	.3417	.3409	- .0008
14.....	6.451	.2933	.2933	.0000
15.....	6.821	.2663	.2670	+ .0007
16.....	7.435	.2226	.2228	- .0002
16½.....	7.614	.2120	.2116	- .0004
17.....	7.868	.1961	.1957	- .0004
20.....	7.998	.1881	.1869	- .0012
21.....	8.383	.1654	.1660	+ .0006
22.....	8.646	.1508	.1515	+ .0007
23.....	9.250	.1208	.1215	+ .0007
23½.....	9.517	.1095	.1094	- .0001
24.....	9.754	.1005	.1014	+ .0009
25.....	11.06	.0581	.0578	- .0003
26.....	11.50	.0448	.0445	- .0003
27.....	11.86	.0339	.0337	- .0002
28.....	12.27	.0216	.0221	+ .0005
29.....	12.30	.0207	.0218	+ .0011
30.....	12.58	.0122	.0142	+ .0020

SECOND SERIES

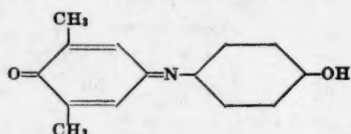
6.....	3.274	0.4951	0.4959	+0.0008
9.....	4.846	.4000	.4000	.0000
11.....	5.786	.3403	.3410	+ .0007
13.....	6.079	.3202	.3202	.0000
14.....	6.429	.2949	.2953	+ .0004
14½.....	6.619	.2810	.2810	.0000
15.....	6.800	.2678	.2678	.0000
15½.....	7.071	.2484	.2490	+ .0006
16.....	7.398	.2261	.2256	- .0005
21.....	8.420	.1634	.1636	+ .0002
22.....	8.649	.1506	.1507	+ .0001
22½.....	8.973	.1338	.1337	- .0001
23.....	9.297	.1187	.1186	- .0001
23½.....	9.646	.1045	.1040	- .0005
24.....	10.27	.0828	.0824	- .0004
24½.....	10.79	.0665	.0664	- .0001
25.....	11.06	.0581	.0588	+ .0007
28.....	12.29	.0210	.0225	+ .0015

Dissociations.—The dissociation constant of the phenolic hydrion in the oxidant was determined colorimetrically to be $pK_0=6.15$, which compares well with the final value 6.16. The two dissociations in the reductant were found to be 6.89 and 9.21 for pK_{R1} and pK_{R2} , respectively.

m-Chlorophenol indo-2,6-dichlorophenol possesses desirable properties as an indicator of oxidation-reduction. It is readily prepared and fairly stable. To facilitate its use, there are given in Table 12 the calculated values of the system between pH 5.0 and 9.0 at intervals of 0.2 pH.

2,6-DIMETHYLBENZENONE INDOPHENOL

(2,6-Dimethylphenol indophenol)



Preparation.—This indophenol was prepared by the alkaline condensation of 2,6-dimethylphenol with quinone-chloroimide. It was purified by salting out with NaCl.

Analysis.—Attempts to analyze the compound by titration with alkaline hydroxylamine were not successful. Titration with titanous chloride yielded 62.5 per cent reducible coloring matter. Kjeldahl nitrogen calculated as indophenol gave 65.7 per cent purity, the remainder being largely NaCl.

Electrometric titrations.—A titration at pH 8.646 of 55 c. c. approx. 0.0007 molar oxidant with leuco-indigo disulphonate gave the results shown in Table 9. Another titration at pH 7.398 of 0.00046 molar oxidant gave the results shown in Table 10. Both determinations show a dye content of 60 to 65 per cent in the sample studied. The deviations of electrode potential from the ideal are also greater than permissible in an acceptable titration.

TABLE 9.—2,6-Dimethylphenol indophenol titrated with approximately 0.00125 *M* leuco-indigo disulphonate at pH 8.646

[Titration time 45 min.]

Indigo	Reduction	$0.03006 \times \log \frac{[Sr]}{[So]}$	E_h	E'_0	Deviation from 0.0420
c. c.	Per cent				
2	10.05	-0.0286	0.0721	(0.0435)	(+0.0015)
3	15.08	-0.0226	.0652	.0426	+ .0006
4	20.10	-0.0180	.0608	.0428	+ .0008
5	25.12	-0.0143	.0568	.0425	+ .0005
6	30.15	-0.0110	.0533	.0423	+ .0003
7	35.18	-0.0080	.0501	.0421	+ .0001
8	40.20	-0.0052	.0472	.0420	.0000
9	45.23	-0.0025	.0443	.0418	- .0002
10	50.25	+ .0001	.0416	.0417	- .0003
11	55.28	.0028	.0388	.0416	- .0004
12	60.31	.0055	.0359	.0414	- .0006
13	65.34	.0083	.0341	.0414	- .0006
14	70.36	.0113	.0304	.0417	- .0003
15	75.38	.0146	.0273	.0419	- .0001
16	80.41	.0184	.0237	.0421	+ .0001
17	85.43	.0231	.0191	.0422	+ .0002
18	90.46	.0294	.0128	.0422	+ .0002
19	95.48	.0398	.0021	.0419	- .0001
19.9	100.00				
			Average = 0.0420		

TABLE 10.—2,6-Dimethylphenol indophenol titrated with approximately 0.00125 M leuco-indigo disulphonate at pH 7.398

[Titration time, 30 min.]

Indigo	Reduction	$0.03006 \times \log \frac{[S_r]}{[S_o]}$	E_h	E'_0	Deviation from 0.1244
c. c.	Per cent				
1.....	8.55	-0.0309	0.1557	+0.1248	+0.0004
2.....	17.09	-.0206	.1452	.1246	+.0002
3.....	25.64	-.0139	.1385	.1246	+.0002
4.....	34.19	-.0086	.1331	.1245	+.0001
5.....	42.73	-.0038	.1283	.1245	+.0001
6.....	51.28	+.0007	.1237	.1244	-.0000
7.....	59.83	.0052	.1191	.1243	-.0001
8.....	68.38	.0101	.1142	.1243	-.0001
9.....	76.93	.0157	.1084	.1241	-.0003
10.....	85.47	.0231	.1007	.1238	-.0006
11.....	94.02	.0360	.0880	.1240	-.0004
11.7.....	100.00				
			Average = 0.1244		

This particular compound was studied electrometrically about three years after its synthesis and it is possible that a decomposition during this interval is the cause of the deviations noted. Since only a general placement of the system was desired in this case and a limited amount of material was available, it was not deemed advisable to purify the sample further.

Relation of E'_0 to pH.—The determinations were made on a partly reduced solution of 0.0005 molar concentration in buffers of different pH. The results are shown in Table 11. Drifts in potential were noted, as in the case of the other indophenols, apparently typical for each pH region. The values noted in Table 11 are the initial or plateau values as already described.

TABLE 11.—2,6-Dimethylphenol indophenol. Relation of E'_0 to pH

$E_0 = 0.5688$; $K_0 = 1.35 \times 10^{-2}$ $K_{R1} = 1.0 \times 10^{-10}$ $K_{R2} = 1.2 \times 10^{-11}$
 $pK_0 = 8.9$ $pK_{R1} = 10.0$ $pK_{R2} = 10.9$

Buffer No.	pH	E'_0 (calc.)	E'_0 (found)	Deviation
1.....	1.072	0.5044	0.5011	-0.0033
5.....	2.855	.3972	.3965	-.0007
6.....	3.251	.3733	.3734	+.0001
7.....	3.787	.3411	.3407	-.0004
8.....	4.360	.3067	.3068	+.0001
9.....	4.811	.2796	.2798	+.0002
10.....	5.418	.2431	.2433	+.0002
11.....	5.765	.2222	.2214	-.0008
13.....	6.270	.1918	.1918	.0000
14.....	6.451	.1810	.1807	-.0003
15.....	6.821	.1586	.1590	+.0004
16.....	7.435	.1213	.1208	-.0005
20.....	7.998	.0865	.0843	-.0002
21.....	8.383	.0614	.0605	-.0009
22.....	8.646	+.0435	+.0421	-.0014
23.....	9.250	-.0011	-.0036	-.0025
23½.....	9.517	-.0216	-.0230	-.0014
24.....	9.754	-.0396	-.0416	-.0020
24½.....	10.58	-.0944	-.0978	-.0034
25.....	11.07	-.1189	-.1196	-.0007
26.....	11.50	-.1360	-.1346	+.0014
27.....	11.86	-.1485	-.1479	+.0006
28.....	12.27	-.1617	-.1617	.0000
30.....	12.57	-.1711	-.1710	+.0001

The data are plotted along curve A, Figure 3, as solid circles. Another shorter series of measurements was made yielding values essentially in agreement with those shown in Table 11. The open circles along curve A, Figure 3, record the results of the second series.

The theoretical relation between pH and E'_0 is represented by curve A (fig. 3) which is calculated from the electrode equation.

Dissociations.—The value for pK_0 corresponding to the dissociation of the oxidant was found colorimetrically to lie near 8.8 at room temperature. This corresponds fairly well with the final value $pK_0=8.9$ used in the calculation of the electrode data taken at 30° . From the deflections in curve A, Figure 3, pK_{R1} and pK_{R2} were found to be 10.0 and 10.9, respectively.

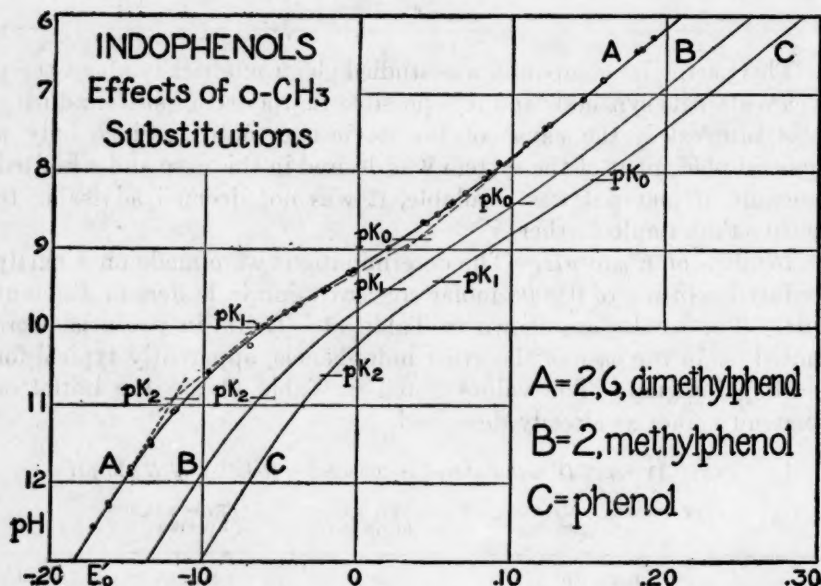


FIG. 3

USEFUL OXIDATION-REDUCTION INDICATORS

The three halogenated indophenol systems here described occupy the position on the potential scale of the most electropositive of the indophenols thus far reported. They are, therefore, the most easily reducible of all known satisfactory reversible oxidation-reduction indicators; as such they should prove of value in the study of the milder biochemical reductions and oxidations.

Their behavior is illustrated in a few miscellaneous tests. Freshly collected urines in shallow layers with unrestricted access of air quickly reduced the four compounds described in this paper. Fresh raw milk reduced them more or less readily; on the other hand, a suspension of skim-milk powder failed to reduce them. An infusion

of dried yeast showed practically no reduction of the dyes. On microinjection into *Ameba dubia*, aqueous solutions of these dyes are instantly decolorized. The two sulphonates exhibited some toxicity toward the amebae (*cf.* Cohen, Chambers, and Reznikoff, 1928); but the other two compounds seemed to be tolerated in moderate amounts for at least several hours.

TABLE 12.— E' values of a series of useful oxidation-reduction indicators at 30° C., arranged in order of increasing potential at pH 7.0

[Values rounded to nearest millivolt]

pH	Indigo disulphonate	Indigo trisulphonate	Indigo tetrasulphonate	Methylene blue	Toluyene blue	1-Naphthol-2-sulphonate indo-2,6-di-chlorophenol	1-Naphthol-2-sulphonate indophenol	2,6-Dichlorophenol indo-o-cresol	2,6-Dichlorophenol indophenol	o-Chlorophenol indo-phenol	Phenol-o-sulphonate indo-2,6-dibromophenol	m-Chlorophenol indo-2,6-dichlorophenol	Phenol-m-sulphonate indo-2,6-dibromophenol
5.0	-0.010	0.032	0.065	0.101	0.221	0.262	-----	0.335	0.366	-----	0.382	0.391	0.390
5.2	-.022	.020	.053	.088	.208	.249	-----	.322	.352	-----	.369	.378	.378
5.4	-.034	+.008	.041	.077	.196	.236	(¹)	.307	.339	(¹)	.357	.366	.366
5.6	-.045	.004	.029	.066	.184	.223	-----	.292	.325	-----	.343	.351	.354
5.8	-.057	.016	.017	.056	.173	.210	-----	.277	.310	-----	.330	.339	.342
6.0	-.069	.028	+.006	.047	.162	.196	0.183	.261	.295	0.301	.316	.326	.330
6.2	-.081	.039	.006	.039	.151	.181	.171	.245	.279	.288	.301	.312	.319
6.4	-.092	.051	.017	.031	.141	.166	.159	.228	.263	.275	.287	.297	.307
6.6	-.104	.061	.027	.024	.132	.150	.147	.212	.247	.262	.272	.282	.295
6.8	-.114	.072	.037	.017	.123	.134	.135	.196	.232	.248	.257	.268	.284
7.0	-.125	.081	.048	.011	.115	.119	.123	.181	.217	.233	.242	.254	.273
7.2	-.134	.091	.055	+.004	.108	.103	.111	.166	.203	.218	.228	.240	.262
7.4	-.143	.099	.062	.002	.101	.088	.099	.152	.189	.203	.214	.226	.251
7.6	-.152	.107	.070	.008	.094	.073	.087	.138	.175	.187	.201	.213	.240
7.8	-.160	.114	.077	.014	.088	.060	.074	.125	.162	.170	.188	.200	.229
8.0	-.167	.121	.083	.020	.082	.046	.062	.112	.150	.155	.175	.188	.218
8.2	-.174	.127	.090	.026	.075	.034	.049	.099	.137	.139	.163	.176	.207
8.4	-.180	.134	.096	.032	.069	.021	.036	.087	.125	.124	.151	.164	.197
8.6	-.187	.140	.102	.038	.063	+.010	.023	.075	.113	.109	.139	.153	.187
8.8	-.193	.146	.108	.044	.057	-.002	+.010	.063	.101	.095	.127	.143	.177
9.0	-.199	.152	.114	.050	.051	-.012	-.003	.051	.089	.082	.115	.133	.168

¹ Unstable in this region of pH.

Appreciable retardation of reduction has been noted for the sulphonated oxidation-reduction indicators in some instances while in other instances it has been absent or negligible. The retardation may be due specifically to the presence of the sulphonic acid group and its interference in a particular system, but there is not yet entirely excluded the possibility that impurities are responsible. The user of these compounds will not be easily led astray if he distinguishes in his experiments between (1) the intensity of reduction as determined by reduction or nonreduction of an indicator, (2) the capacity of reduction as determined by the amount of indicator reduced and (3) the rate of reduction as determined by the time required for a certain quantity of reduction.

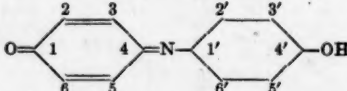
To assist in the employment of these indicators there are given in Table 12 the electrode potentials of the systems (at 50 per cent reduction) between pH 5 and 9. Table 12 includes a series of reversible oxidation-reduction indicators considered suitable for general

use. The list omits Bindschedler's green and *m*-bromophenol indo-phenol which are too unstable. *m*-Bromophenol indo-phenol is replaced by *m*-chlorophenol indo-2,6-dichlorophenol which covers nearly the same range of oxidation-reduction potential, and has a more satisfactory color change in addition to being more stable.

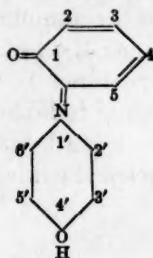
THE EFFECTS OF SIMPLE SUBSTITUTIONS ON THE FREE ENERGIES OF REDUCTION AND IONIZATION

It seems worth while at this point to summarize our data on the indophenols and review the effects of substitution. Except for amino substitutions, which will be considered in a forthcoming paper, all the available characteristic constants from this and preceding papers of this series are given in Table 13. Figures 1, 2, and 3 show graphically and in more detail the effects observed in three selected groups.

TABLE 13.—Summary of characteristic constants at 30°

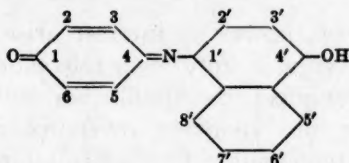
p-BENZENONE INDOPHENOLS						
						
Substituents	Molecular weight Na ₁ salt	E° at indicated pH	E ₀	pK ₀	pK ₁	pK ₂
No substitution (structure above).....	221	-----	0.6494	8.10	9.44	10.64
2 methyl.....	235	-----	.6160	8.38	9.52	10.89
3 methyl.....	235	-----	.6316	8.55	9.57	10.66
2-6 dimethyl.....	249	-----	.5688	8.9	10.0	10.9
2 isopropyl-5 methyl.....	277	-----	.5923	8.80	9.85	10.82
2 methyl-5 isopropyl.....	277	-----	.5931	8.85	9.85	10.74
2 methoxy.....	251	{ (9.62) - .010 (7.0) }	-----	8.7	-----	-----
2 chloro.....	266	{ (7.0) .253 }	0.6627	7.00	8.44	10.30
2 bromo.....	300	{ .6586 }	.6586	7.11	8.52	10.24
3 bromo.....	300	{ (7.0) .248 }	.6700	7.82	8.96	10.30
2-6 dichloro.....	290	{ (7.0) .217 }	.6684	5.70	7.00	10.13
2-6-3' trichloro.....	325	-----	.6684	5.80	7.05	8.75
2-6-2' trichloro.....	325	-----	.6919	6.16	6.89	9.21
2-6 dichloro 3' methyl.....	304	{ (7.0) .181 }	.6394	5.50	7.10	10.43
2-6 dibromo.....	379	{ (6.93) .221 }	.6677	5.70	7.00	10.05
2-6 dibromo 3' methyl.....	395	{ (6.93) .187 }	-----	5.4	-----	-----
2-6 dibromo 2' methyl.....	395	{ (6.93) .210 }	-----	5.9	-----	-----
2-6 dibromo 3' isopropyl 6' methyl.....	435	{ (8.68) .052 }	-----	-----	-----	-----
2-6 dibromo 3' methoxy.....	409	{ (6.93) .163 }	-----	5.6	-----	-----
2-6 dibromo 3' chloro.....	385	{ (6.93) .225 }	-----	5.4	-----	-----
2-6-3' tribromo.....	458	{ (6.93) .225 }	-----	5.1	-----	-----
2-6-2' tribromo.....	458	{ (6.93) .256 }	-----	6.3	-----	-----
2-6 dibromo 3' sulphonate.....	459	-----	.6834	6.07	7.01	10.22
2-6 dibromo 2' sulphonate.....	459	-----	.6906	7.40	7.12	8.93

O-BENZENONE INDOPHENOLS (ORTHO INDOPHENOLS)



Substituents	Molecular weight Na ₁ salt	E° at indicated pH	E _o	pK _o	pK ₁	pK ₂
No substitution (structure above).....	221	{ (8.67) .109 }	-----	8.4	-----	-----
3 methyl.....	235	-----	0.6465	8.38	9.35	10.70
2 bromo.....	300	{ (8.67) .102 }	-----	7.1	-----	-----

BENZENONE INDONAPHTHOLS (NAPHTHOL INDOPHENOLS)

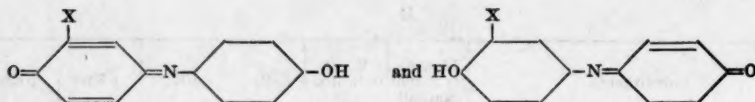


Substituents	Molecular weight Na ₁ Salt	E° at indicated pH	E _o	pK _o	pK ₁	pK ₂
No substitution (structure above).....	271	{ (9.6) -.091 }	-----	-----	-----	-----
3' sulphonic acid.....	351	{ (9.6) -.042 }	0.5440	8.68	9.05	10.70
2 methyl 3' sulphonic acid.....	365	{ (8.68) .018 }	-----	9.0	-----	-----
2-6 dichloro 3' sulphonic acid.....	419	{ (7.0) .119 }	.5630	6.14	7.45	9.32

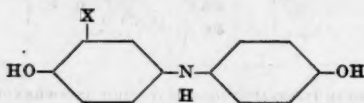
The reader should keep clearly in mind that the data to be compared were obtained in dilute aqueous solutions. If oxidant and reductant were entirely free from hydration, association and "salt effects," then comparative effects of substitution on reduction potentials would be expected to appear in their simplest relations. There is no assurance that the conditions of an ideal solution were attained in our aqueous solutions. All that can be said for the present is that the comparative order of effects is regular and in conformity with general theoretical expectations. The *magnitudes* may have to undergo revision if our standard state shall be shown to need correction. An instructive instance of this situation is reported by Conant (1927) for certain quinone-quinol systems. His findings suggest that the progressive introduction of chlorine atoms into benzoquinone and hydroquinone

in some way changes the affinity of the molecules for the solvent, and that this change is different for the quinone and for the hydroquinone. This may also be a factor among the indophenols.

Another detail of some importance is the matter of tautomerism which undoubtedly occurs among indophenols, although it has been impossible as yet to isolate the hypothetical components. There are two tautomers of the unsymmetrical oxidant worth considering for the present, namely:



both of which on reduction yield the identical reductant:



Certain questions of theoretical interest arise. For instance, is the tautomeric equilibrium a truly reversible condition? Do substitution and pH changes affect this equilibrium and how much? Does each tautomer enter into complete reversible oxidation-reduction equilibrium with the reductant? Our information is as yet too scant to offer a reasonably secure guide to the answers. It is possible to derive certain plausible relations provided a sufficient number of assumptions are made. For instance, it can be shown formally that the equilibrium between a pair of tautomers need not necessarily be the same when on the one hand dissociation is complete and on the other hand it is suppressed. However, granting that a change in tautomeric equilibrium does take place, it would occur in conjunction with the process of dissociation and the corresponding free energy change would appear concurrently with the free energy of dissociation. This is another way of stating that the experimentally determinable dissociation constant is an "apparent" dissociation constant which embraces the equilibria of hydration, tautomerization, etc.

Fieser (1928) has shown theoretically that in an equilibrium between two such tautomers as above pictured, the one having the lower reduction potential should predominate in the mixture. Assuming this to be the case, what would happen if reductant were also present in the mixture (as in all our electrode measurements)? If mutual reversible equilibrium took place instantly between all three components, then the original tautomeric equilibrium could no longer exist and a new one would be established in favor of the oxidant with lower reduction potential. On the other hand, if the rates of equilibration between the three components varied appreciably, a

pseudoequilibrium might conceivably occur, dependent on the slowest process in the chain. Considerations such as these lead to the view that what the organic chemist has to describe, for the sake of definiteness, as a particular structure predominating in a tautomeric equilibrium, is actually only a limiting state for the conditions obtaining at the time of observation.

In certain instances the probable predominating tautomer may be inferred from collateral evidence (see below); but, as has been repeatedly stated in preceding papers of this series, the electrode measurements of *equilibrium* values gives no direct evidence of the existence of postulated tautomers nor of their equilibria. That is to say, the specific free energy changes are not separately detectable.

Possibly kinetic studies in connection with potential measurements of suitable compounds might throw some light on the problem. Unfortunately, in the case of the indophenols, the peculiar drifts in potential and the proneness of the compounds to decompose in solution, especially at both ends of the pH scale, make it difficult if not impossible to discern more than the broad aspects of their oxidation-reduction equilibria. The latter have been established with sufficient definiteness; but the effects of tautomerization, which constitute one of the refinements in the description of the system, are undetectable and must await refinements in our experimental attack.

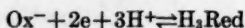
Certain of the general aspects of the effects of substitution have been discussed in earlier papers from this laboratory. In the following we shall consider a few of the details made available by the extension of our recent studies.

Effects of SO₃H-substitution.—The influence of the addition of the SO₃H group is quite similar to that of the halogens. There are peculiar effects on the magnitudes and directions of shift in the energies of dissociation, which occur for instance when two halogens are present in one aromatic ring of the indophenol molecule and sulphonic acid is substituted in the other. This can be seen in the group of three dibrominated compounds as shown in the table below and also in Figure 1.

Substituent	E ₀	pK ₀	pK ₁	pK ₂
A. 2,6-dibromo.....	0.6677	5.70	7.00	10.05
B. 2,6-dibromo-3'-sulphonate (ortho).....	.6834	6.07	7.01	10.22
C. 2,6-dibromo-2'-sulphonate (meta).....	.6906	7.40	7.12	8.93

In the chart one may see at once the typical shift of the system to the electropositive side caused by the addition of the acidic group. The presence of a sulphonic group in the ortho position of the second aromatic ring produces a positive shift of about 16 millivolts in the normal potential (E₀); the same group in the meta position produces a 23 mv. shift.

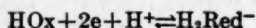
The positions of the dissociation constants, as indicated in the figure, determine the location of the bends in the E'_0 : pH curve and account for the wide separation of systems B and C (ortho- and meta-sulphonates) in the alkaline regions. As we have already seen, the usual sequence of slopes in the E'_0 : pH curves of indophenols is 0.06, 0.09, 0.06, and 0.03 from acid to alkaline regions. This "normal" sequence is determined by the relative order in the magnitudes of the three dissociation constants, namely, $K_0 > K_{r1} > K_{r2}$. The 0.09 slope determined by this order represents the equilibrium between ionized oxidant and non-ionized reductant:



the full electrode equation for which is

$$E_h = C + \frac{2.3RT}{2F} (pK_{r3} + pK_{r2} + pK_{r1}) - \frac{2.3 \times 3RT}{2F} \text{pH} - \frac{RT}{2F} \ln \frac{[\text{H}_3\text{Red}]}{[\text{Ox}^-]}$$

(pK_{r3} being of negligible magnitude). In the meta-sulphonate derivative the effect of the substitution is to decrease K_0 much more than K_{r1} so that the relative order becomes $K_{r1} > K_0 > K_{r2}$, with the result that the 0.09 slope is replaced by a 0.03 slope and the character of the E'_0 : pH curve is altered, a situation which at first sight seemed improbable. The 0.03 slope determined by the new order of the constants represents the equilibrium between non-ionized oxidant and ionized reductant:



the complete equation for which is

$$E_h = C + \frac{2.3RT}{2F} (pK_{r3} + pK_{r2} - pK_0) - \frac{2.3RT}{2F} \text{pH} - \frac{RT}{2F} \ln \frac{[\text{H}_2\text{Red}^-]}{[\text{HOx}]}$$

(pK_{r3} being of negligible magnitude).

Effects of chlorine substitution.—These are shown in Figure 2 and the following table.

Substituent	E_0	pK_0	pK_{r1}	pK_{r2}
A. None.....	0.6404	8.10	9.44	10.64
B. 2-chloro.....	.6627	7.00	8.44	10.30
C. 2, 6-dichloro.....	.6684	5.70	7.00	10.13
D. 2, 6, 3'-trichloro (ortho).....	.6684	5.80	7.05	8.75
E. 2, 6, 2'-trichloro (meta).....	.6919	6.16	6.89	9.21

There is to be noted the progressive increase in normal potentials with increase in the number of chlorine atoms. It seems peculiar that the presence of a third chlorine in 2, 6, 3'-trichloro indophenol causes no noticeable shift in the E_0 value from that of the 2, 6-dichloro compound. In the 2, 6, 2'-trichloro (meta) compound the shift is 23.5 mv., almost the same as that found for *m*-sulphonate substitution under similar circumstances.

The characteristic course pursued by each of the E'_0 : pH curves for the systems in the table above can be seen in Figure 2. It is interesting to note how the regular order of these systems is maintained at each end of the pH scale while in the intermediate pH zone they intercross in an apparently confusing manner. This is a more elaborate example of the fact that a simple order in the effects of substitution may be revealed in one region of pH and obscured in another.

The effects of halogen substitution on the energies of dissociation as revealed by changes in pK values are extremely interesting. The successive addition of two chlorine atoms to one ring in the indophenol nucleus causes progressive decreases in pK_0 , pK_{r1} , and pK_{r2} . When a third chlorine atom is introduced and located on the other aromatic ring, pK_0 and pK_{r1} are affected to some extent and in different directions depending on whether the chlorine enters in the ortho or the meta position, but there appears a more pronounced decrease in the value of pK_{r2} . One would expect other negative substituents in the same positions to produce similar effects, and an inspection of the effects produced by corresponding sulphonic acid substitutions reveals analogous changes.

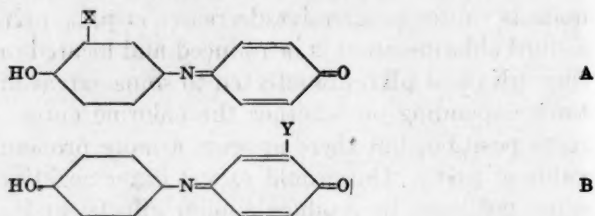
Effects of CH_3 -substitutions.—The influence of a few typical methyl substitutions is shown in the table below and in Figure 3.

Substituent	E_0	pK_0	pK_{r1}	pK_{r2}
None.....	0.6494	8.10	9.44	10.64
2-methyl.....	.6160	8.38	9.52	10.89
3-methyl.....	.6316	8.55	9.57	10.66
2, 6-dimethyl.....	.5688	8.9	10.0	10.9
2-isopropyl-5-methyl.....	.5923	8.80	9.85	10.82
2-methyl-5-isopropyl.....	.5931	8.85	9.85	10.72

The addition of one methyl group in the ortho position produces an electronegative shift of 33.4 mv. in the normal potential; a meta substitution produces only a 17.8 mv. shift. In contrast to this, the corresponding shifts for bromine additions are 9.2 and 20.6 mv., respectively, and in the opposite direction. The maximum effect of the CH_3 -substitution is more than 50 per cent greater than that of bromine substitution.

Comparing the effects of ortho as against meta substitutions in simple indophenols, it appears that CH_3 substituted into the meta position produces greater changes in E_0 , K_0 , K_{r1} and K_{r2} than does ortho substitution; on the other hand, the corresponding ortho-bromo effects are generally greater than the meta-bromo. An inspection of the characteristic constants of the thymol and carvacrol derivatives shows small differences which are apparently due to the effect of the heavier isopropyl group.

The preceding sections indicate the directions and magnitudes of the changes produced in the characteristic constants by substitutions of positive and negative groups in the indophenol molecule. The effects are clearly dependent on the kind of substituent and its position with respect to the ionizable group or groups. Having this in mind and ignoring possible stereoisomers for the present, the changes in dissociation constants produced by substitution appear to be most rationally explained by assuming structure A (below) to be the predominant tautomer when the substituent (X) is a negative group, and structure B when the substituent (Y) is a positive group. (Cf. Fieser, 1928.)



Further conclusions may be safely left until more extensive and elaborate experimental data become available.

The effect of substitution on the dissociation of the phenolic hydrion may be explained as due to an attraction or repulsion of the electrons involved in the escape of the ionizable hydrogen, the effect being as if alkyl and similar groups were repellant while halogens and the like were attractive. The dissociation constants of the ionizable groups seem to depend on three major factors: (1) The nature of the group, (2) the influence of other structures, and (3) the effect of electrostatic forces between the ionizing groups. (Cf. Simms, 1926.) The nature of the groups largely determine the order of magnitude of each constant. The influence of the other two factors seems to be dependent upon the nature of the structure involved and their relative positions. Cohen (1927) has shown that almost identical changes in dissociation occur in the sulphonphthleins as in the indophenol group.

It is clear from the data in this and preceding papers from this laboratory that *simple* substitutions do not produce as great changes in the oxidation-reduction potentials of a system as more fundamental alterations in the type of compound (indophenol, thiazine, or indigo systems). The relatively greater effect of alkyl substitution over halogen has already been noted. The change from indophenol to indonaphthol is even greater and traverses almost half the gap between the indophenol and the thiazine systems. The corresponding anthracene derivative of indophenol would be expected to produce an oxidation-reduction system reaching into the methylene blue range. It would be interesting to verify this prediction.

Acknowledgments.—We are indebted to Senior Chemist H. D. Gibbs for the synthesis of 2, 6-dimethylphenol indophenol and for the hydroxylamine titrations of the compounds here reported. For some of the chemical analyses we are indebted to Chemist E. Elvove and Assistant Chemist C. G. Remsburg.

SUMMARY

The oxidation-reduction equilibrium potentials and dissociation constants have been determined at 30° (see table below) for the following indophenols:

- (1) 2, 6-dibromobenzenone indophenol 3'-Na sulphonate,
- (2) 2, 6-dibromobenzenone indophenol 2'-Na sulphonate,
- (3) 2, 6-dichlorobenzenone indo-3'-chlorophenol,
- (4) 2, 6-dimethylbenzenone indophenol.

Compound No.	Normal potential, E_0	Dissociations ($pK = \log \frac{1}{K}$)		
		pK_0	pK_1	pK_2
1	0.6834	6.07	7.01	10.22
2	.6906	7.40	7.12	8.93
3	.6919	6.16	6.89	9.21
4	.5688	8.9	10.0	10.9

The reversal in magnitudes of pK_0 and pK_1 in the second compound produces a unique alteration in the character of the usual $E'_0 : pH$ curve of indophenol systems.

The first three of these compounds occupy a position on the extreme electropositive side of the indophenol series, and extend the range beyond that hitherto reached by satisfactory, reversible oxidation-reduction indicators.

A revised list of useful oxidation-reduction indicators is presented with their equilibrium potentials between pH 5.0 and 9.0 at intervals of 0.2 pH.

A new means of distinguishing between dissociations in the oxidant and those in the reductant is described.

The new compounds furnish additional information on the effects of substitution in the indophenols and the pertinent data have been collected and summarized.

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THE NOTIFIABLE DISEASES

PREVALENCE DURING 1927 IN CITIES OF
10,000 TO 100,000 POPULATION

SUPPLEMENT No. 72

TO THE

PUBLIC HEALTH REPORTS



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DEPARTMENT OF HEALTH
UNITED STATES PUBLIC HEALTH SERVICE
BUREAU OF HYGIENE

THE NOTIFIABLE DISEASES

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THE NOTIFIABLE DISEASES

PREVALENCE DURING 1927 IN CITIES OF 10,000 TO 100,000 POPULATION¹

The tables shown on the following pages were compiled from data furnished by the health officers of the cities.

The following is a list of the diseases included:

Anthrax.	Rabies in animals.
Chicken pox.	Rabies in man.
Dengue.	Rocky Mountain spotted fever.
Diphtheria.	Scarlet fever.
Influenza.	Septic sore throat.
Lethargic encephalitis.	Smallpox.
Malaria.	Tuberculosis (all forms and respiratory system).
Measles.	Tularaemia.
Meningococcus meningitis.	Typhoid fever.
Mumps.	Typhus fever.
Pellagra.	Undulant fever.
Pneumonia (all forms).	Whooping cough.
Poliomyelitis (infantile paralysis).	

The present article contains reports from cities having between 10,000 and 100,000 population. It is believed that practically all of these cities are included which have records of morbidity from communicable diseases which are of value for statistical purposes.

Populations as given in the tables were estimated by the Bureau of the Census. Estimates are not available for many cities.

The estimated expectancy, given in the tables for some of the diseases, is the result of an attempt to ascertain from the experience of recent years how many cases of the disease under consideration might be expected in 1927. In most instances the estimated expectancy is the median number of cases reported by the city for the years 1920 to 1926, inclusive. When several epidemics have occurred during these years, or when for other reasons the median is not satisfactory, epidemic years are excluded, and the estimated expectancy is the mean of the number of cases reported for the nonepidemic years. The aim has been to ascertain how many cases of each disease may reasonably be expected in the absence of epidemics.

The column headed "Number of years" shows the number of years since 1919 for which data are available for each city.

In comparing the figures for 1927 with the estimated expectancy, averages, or with reports for preceding years, it should be borne in mind that there has been a gradual improvement in the reporting of communicable diseases during the last few years. An increase in

¹ Data for cities having more than 100,000 population are published in Supplement No. 70.

the number of cases reported may be due to better reporting of the particular disease rather than to an increase in the number of cases occurring.

In studying these tables it should be kept in mind that a relatively large number of reported cases of a communicable disease as indicated by a high case rate (and more especially when accompanied by a relatively small number of deaths, as indicated by a low fatality rate) usually means that the health department of the city reporting is active and that the cases of the disease are being well reported by the practicing physicians. It does not usually mean that the disease is more prevalent in that city than in other cities. A high fatality rate may mean that the disease was unusually virulent in a city, that the physicians did not treat the disease in that city with the success usual elsewhere, or that the practicing physicians did not report all of their cases to the health department. On the other hand, an unusually low fatality rate may be due to the fact that the disease in the city was unusually mild, that the physicians treated it with unusual success, that the practicing physicians reported their cases satisfactorily, or that the registration of deaths was incomplete or the assignment of the causes of death inaccurate.

Cities which did not report either cases or deaths of a certain disease in 1927 are not included in the table for that disease.

Reported Prevalence for the Year 1927

ANTHRAX

City	Cases reported, 1927	Deaths registered, 1927
Massachusetts:		
Haverhill.....	2	0
New York:		
Amsterdam.....	2	0
Gloversville.....	4	0
Johnstown.....	1	0
North Carolina:		
Asheville.....	1	1

CHICKEN POX

City	Estimated population, July 1, 1927	Average, 1922-1926		1927				
		Number of years	Cases	Cases reported	Cases per 1,000 inhabitants	Deaths registered	Deaths per 1,000 inhabitants	Cases reported for each death registered
Alabama:								
Bessemer.....		2	16	7		0		
Florence.....		2	14	14		0		
Gadsden.....		1	20	5		0		
Mobile.....	67,700	4	35	43	0.64	0		
Selma.....				29		0		
Tuscaloosa.....		1	15	39		0		

CHICKEN POX—Continued

City	Estimated population, July 1, 1927	Average, 1922-1926		1927				
		Number of years	Cases	Cases re- ported	Cases per 1,000 inhab- itants	Deaths regis- tered	Deaths per 1,000 inhab- itants	Cases report- ed for each death regis- tered
Arizona:								
Tucson.....		4	15	8		0		
Arkansas:								
Fort Smith.....		4	97	73		0		
Helena.....				11				
Hot Springs.....		2	63	20		0		
Little Rock.....	77,500	5	51	54	0.70	0		
California:								
Alhambra.....		3	76	131		0		
Bakersfield.....		5	13	10		0		
Berkeley.....	69,400	5	593	817	11.77	0		
Chico.....		3	15	5		0		
Eureka.....		5	51	10		0		
Fresno.....	62,200	4	85	135	2.17	0		
Glendale.....		5	209	470		0		
Modesto.....		1	40	6		0		
Pasadena.....	60,500	5	439	571	9.44	0		
Richmond.....		5	5	8		0		
Riverside.....		5	175	278		0		
Sacramento.....	74,000	5	130	272	3.65	0		
San Jose.....	44,800	5	87	153	3.42	0		
Santa Ana.....		5	30	108		0		
Santa Barbara.....		3	45	196		0		
Stockton.....	49,800	4	115	427	8.57	0		
Vallejo.....		3	4	27		0		
Colorado:								
Boulder.....		5	86	25		0		
Colorado Springs.....		5	182	148		0		
Greeley.....		4	30	23		0		
Pueblo.....	44,100	5	180	303	6.87	1	0.02	303.0
Trinidad.....		5	35	146		0		
Connecticut:								
Bristol.....		4	30	70		0		
Fairfield.....		5	47	55				
Greenwich.....		5	90	276		0		
Manchester.....		4	13	26		0		
New Britain.....	71,200	5	113	128	1.80	0		
New London.....		4	53	35		0		
Norwich.....		4	11	31				
Shelton.....		2	11	2				
Stamford Town.....				206		0		
Stratford.....		4	51	56		0		
Florida:								
Orlando.....		1	4	16		0		
West Palm Beach.....		3	3	34		0		
Georgia:								
Athens.....		4	34	33		0		
Augusta.....	56,200	3	79	111	1.98	0		
Brunswick.....		4	54	16		0		
Macon.....	60,100	5	188	121	2.01	0		
Savannah.....	99,700	5	43	46	.46	0		
Waycross.....		1	54	48		0		
Idaho:								
Boise.....		5	72	43		0		
Pocatello.....		4	46	49		0		
Illinois:								
Alton.....		4	90	97		0		
Aurora.....	46,500	4	155	201	4.32	0		
Berwyn.....		5	113	78		0		
Bloomington.....		5	252	220		0		
Blue Island.....		5	57	31		0		
Champaign.....		5	63	118		0		
Chicago Heights.....		4	18	35		1		35.0
Cicero.....	68,500	5	160	139	2.03	0		
Danville.....	38,200	4	65	75	1.96	0		
Decatur.....	56,000	4	166	171	3.05	0		
East Moline.....		3	21	74		0		
East St. Louis.....	73,100	5	37	42	.57	0		
Elgin.....	35,000	5	226	594	16.97	0		
Evanston.....	46,400	5	339	228	4.91	0		
Freeport.....		4	135	73		0		

CHICKEN POX—Continued

City	Estimated population, July 1, 1927	Average, 1922-1926		1927				
		Number of years	Cases	Cases reported	Cases per 1,000 inhabitants	Deaths registered	Deaths per 1,000 inhabitants	Cases reported for each death registered
Illinois—Continued.								
Galesburg		5	184	44		0		
Jacksonville		5	134	20		0		
Joliet	41,500	3	26	30	0.72	0		
Kewanee		4	236	78				
La Salle		5	76	144		0		
Maywood		5	76	100		0		
Moline	35,100	5	255	228	6.50	0		
Oak Park	55,600	5	456	603	10.85	0		
Pekin		5	48	105		0		
Peoria	83,500	5	260	249	2.98	0		
Quincy	39,500	5	130	167	4.23	0		
Rockford	80,900	5	326	748	9.25	1	0.01	748.0
Rock Island	41,900	5	202	243	5.80	0		
Springfield	66,400	5	218	217	3.27	0		
Urbana		3	104	50		0		
Waukegan		4	69	44				
Indiana:								
Anderson		5	126	184		0		
Crawfordsville		5	16	35		0		
East Chicago	49,100	5	35	29	.59			
Elkhart		4	6	39		0		
Elwood		5	34	19		0		
Evansville	96,600	1	97	62	.64	0		
Gary	85,200	4	123	122	1.43	0		
Kokomo	39,100	5	25	24	.61	0		
La Fayette		5	20	14		0		
La Porte		4	4	2		0		
Logansport		5	23	9		0		
Michigan City		5	13	10		0		
Mishawaka		5	17	10		0		
Muncie	45,800	5	233	423	9.24	0		
New Albany		2	2	1		0		
New Castle		4	5	11		0		
Peru		1	40	10		0		
Richmond		5	9	41		1		41.0
South Bend	84,200	5	165	93	1.10	0		
Terre Haute	72,700	5	93	88	1.21	0		
Wabash		2	5	4		0		
Whiting		5	7	27				
Iowa:								
Boone		3	53	112		0		
Burlington		5	48	103		0		
Cedar Rapids	54,100	3	51	103	1.90	0		
Clinton		5	17	19		0		
Davenport	152,500	4	53	22	.42			
Dubuque	41,900	5	109	79	1.89			
Iowa City		5	25	27				
Muscatine		5	52	36		0		
Ottumwa		1	8	43		0		
Waterloo	37,000	4	156	251	6.78	1	.03	251.0
Kansas:								
Arkansas City		2	6	22		0		
Coffeyville		5	24	37		0		
Eldorado		4	127	109		0		
Emporia		4	33	163		0		
Fort Scott		5	12	20		0		
Hutchinson		4	40	120		1		120.0
Lawrence		5	47	50		0		
Leavenworth		5	31	42				
Parsons		5	29	45		0		
Salina				112				
Topeka	61,900	5	515	462	7.46	0		
Kentucky:								
Covington	58,700	4	38	14	.24	0		
Lexington	48,100	3	103	90	1.87	0		
Paducah		5	52	155		0		
Louisiana:								
Baton Rouge		3	3	2		0		
Lake Charles		4	44	33		0		
Shreveport	78,000	4	85	236	3.03	0		

1 State census, 1925.

CHICKEN POX—Continued

City	Estimated population, July 1, 1927	Average, 1922-1926		1927				
		Number of years	Cases	Cases re- ported	Cases per 1,000 inhab- itants	Deaths regis- tered	Deaths per 1,000 inhab- itants	Cases report- ed for each death regis- tered
Maine:								
Auburn		4	35	185		0		
Bangor		4	30	55		0		
Bath		5	17	16		0		
Biddeford		4	20	12		0		
Lewiston	36,100	5	85	62	1.72	0		
Portland	77,500	5	295	385	4.97	1	0.01	385.0
South Portland		2	56	47				
Waterville		5	76	22		0		
Westbrook		1	4	2		0		
Maryland:								
Cumberland		4	56	24		0		
Frederick		1	5	10		0		
Massachusetts:								
Adams		5	13	12		0		
Amesbury		4	16	36		0		
Arlington		5	105	110		0		
Athol		2	8	9		0		
Attleboro		4	58	59		0		
Beverly		5	35	21		0		
Braintree		4	38	28		0		
Brockton	165,300	5	135	123	1.88	0		
Brookline	44,800	5	162	180	4.02	0		
Chelsea	49,000	5	62	66	1.35			
Chicopee	44,300	4	12	19	.43	0		
Clinton		5	32	33		0		
Danvers		5	15	32		0		
Everett	42,900	5	75	86	2.00	0		
Frammingham		5	87	40		0		
Gardner		5	29	74		0		
Gloucester		1	12	6		0		
Greenfield		4	70	69		0		
Haverhill	149,200	5	133	79	1.61	0		
Lawrence	193,500	5	125	54	.58	0		
Leominster		5	40	22		0		
Malden	52,900	5	66	52	.98	0		
Marlboro		4	30	17		0		
Medford	51,300	5	106	181	3.53	0		
Melrose		5	42	27		0		
Methuen		5	57	85		0		
Milford		5	11	43		0		
Milton		2	122	73		0		
Natick		4	43	49		0		
Newburyport		5	34	34		0		
Newton	56,000	5	199	432	7.71	0		
North Adams		4	6	23		0		
Northampton		5	59	80		0		
Northbridge		5	13	22		0		
Norwood		2	19	16		0		
Palmer		3	2	1				
Peabody		5	28	24		0		
Pittsfield	49,100	5	36	57	1.16	0		
Plymouth		5	37	21				
Quincy	65,300	5	91	82	1.26	0		
Revere	35,200	1	23	58	1.65	0		
Salem	42,900	5	67	62	1.45	0		
Saugus		5	17	75		0		
Southbridge		4	6	5		0		
Taunton	40,200	5	9	46	1.14	0		
Wakefield		5	28	17		0		
Watertown		5	77	90				
Webster		4	30	101		0		
Westfield		5	20	25		0		
Weymouth				14		0		
Winchester		5	76	79		0		
Winthrop		5	53	82		0		
Woburn		4	14	10		0		
Michigan:								
Adrian		4	11	8		0		
Ann Arbor		5	162	247		0		
Bay City	49,400		26	22	.45	0		

1 State census, 1925.

CHICKEN POX—Continued

City	Estimated population, July 1, 1927	Average, 1922-1926		1927				
		Number of years	Cases	Cases re- ported	Cases per 1,000 inhab- itants	Deaths regis- tered	Deaths per 1,000 inhab- itants	Cases report- ed for each death regis- tered
Michigan—Continued.								
Benton Harbor		5	18	34		0		
Escanaba		5		25		0		
Hamtramck	93,800	5	31	27	0.29	0		
Highland Park	81,700	5	241	424	5.19	0		
Holland		5	20	35		0		
Ironwood		5	89	218		0		
Ishpeming		4	17	5		0		
Jackson	61,700	5	361	388	6.29	0		
Kalamazoo	55,500	5	297	290	5.23	0		
Lansing	75,600	5	485	775	10.25	0		
Marquette		4	124	82		0		
Mount Clemens		2	6	20		0		
Muskegon	45,500	5	62	44	.97	0		
Pontiac	54,000	5	271	440	8.15	0		
Port Huron		5	188	304		0		
River Rouge		2	3	16		1		16.0
Saginaw	74,400	5	152	291	3.91	0		
Sault Ste. Marie		5	87	84		0		
Wyandotte		1	3	7		0		
Minnesota:								
Austin		4	3	16				
Faribault		4	50	48		0		
Hibbing		5	18	27		0		
Mankato		1	1	3		0		
Virginia		1	1	10		0		
Winona		5	71	104		0		
Mississippi:								
Jackson		4	96	99		0		
Missouri:								
Cape Girardeau		1	5	5		0		
Hannibal		2	10	16		0		
Independence		3	25	12		0		
Joplin		4	11	26				
Moberly		4	44	26		0		
St. Joseph	78,500	5	73	89	1.13	0		
Springfield	51,200	4	31	74	1.45			
Montana:								
Anaconda		5	24	6		0		
Billings		1	116	74		0		
Butte	43,300	4	45	330	7.62	0		
Great Falls		4	187	182		0		
Helena		5	18	54		0		
Nebraska:								
Grand Island		5	29	83		0		
Lincoln	69,900	5	278	411	5.88	0		
North Platte		4	12	17		0		
Nevada:								
Reno		5	10	2		0		
New Hampshire:								
Berlin		3	5	59		0		
Claremont		3	7	2		0		
Dover		5	18	28		0		
Keene		5	9	3		0		
Laconia		1	16	13		0		
Nashua		5	6	7		0		
New Jersey:								
Asbury Park		5	42	48		0		
Atlantic City	54,200	2	135	180	3.32	0		
Bayonne	93,100	4	27	25	.27	1	0.01	25.0
Belleville		5	45	118		0		
Bloomfield		4	142	320		0		
Bridgeton		5	32	24				
Cartaret		3	3	3		0		
Clifton		4	26	25		0		
Collingswood		2	30	33				
Dover		3	85	61		0		
East Orange	63,300	5	312	450	7.11	0		
Englewood		4	60	35		0		
Garfield		4	11	13		0		
Hackensack		5	63	133		0		
Harrison		5	26	29				

CHICKEN POX—Continued

City	Estimated population, July 1, 1927	Average, 1922-1926		1927				
		Number of years	Cases	Cases reported	Cases per 1,000 inhabitants	Deaths registered	Deaths per 1,000 inhabitants	Cases reported for each death registered
New Jersey—Continued.								
Hoboken.....		5	26	40		0		
Irvington.....		4	135	315		0		
Kearny.....		4	158	159		0		
Lodi.....		2	6	4		0		
Long Branch.....		5	102	115		0		
Millville.....		1	31	49		0		
Montclair.....		6	191	171		0		
Morristown.....		5	62	178		0		
New Brunswick.....	39,900	3	21	39	0.98	0		
Nutley.....		1	5	30		0		
Orange.....	36,100	5	128	191	5.29	0		
Passaic.....	70,800	5	124	87	1.23	0		
Perth Amboy.....	49,100	5	23	45	.92	0		
Plainfield.....		5	70	105		0		
Rahway.....		5	17	17		0		
Ridgefield Park.....		3	51	15		0		
Rutherford.....		3	17	52		0		
Summit.....		5	56	151		0		
West New York.....		5	53	130		0		
West Orange.....		5	90	40		0		
New Mexico:								
Albuquerque.....		2	105	53		0		
New York:								
Amsterdam.....	35,900	5	131	80	2.23	0		
Auburn.....	35,700	3	83	84	2.35	0		
Binghamton.....	73,900	5	277	344	4.65	0		
Cohoes.....		5	29	23		0		
Corning.....		4	36	19		0		
Cortland.....		4	15	10		0		
Dunkirk.....		5	45	27		0		
Elmira.....	49,500	4	199	209	4.22	0		
Endicott.....		3	135	69		0		
Freeport.....		2	23	12		0		
Geneva.....		4	121	164		0		
Gloversville.....		5	76	55		0		
Hornell.....		5	153	104		0		
Ithaca.....		5	70	55		0		
Jamestown.....	45,100	5	346	643	14.26	0		
Johnstown.....		3	14	61		0		
Kingston.....		4	41	94		0		
Lackawanna.....		4	50	109		0		
Little Falls.....		5	60	50		0		
Lockport.....		5	37	22		0		
Middletown.....		4	68	161		0		
Mount Vernon.....	53,300	5	161	205	3.85	0		
New Rochelle.....	47,300	5	89	153	3.23	0		
Newburgh.....	30,400	5	45	93	3.06	0		
Niagara Falls.....	66,600	5	200	377	5.66	1	0.02	377.0
North Tonawanda.....		5	50	98				
Olean.....		5	92	199		0		
Ossining.....				21		0		
Peekskill.....		5	53	53		0		
Poughkeepsie.....	35,900	5	100	140	3.90	0		
Rome.....		5	48	44		0		
Saratoga Springs.....		5	83	91		0		
Schenectady.....	93,200	5	242	237	2.54	0		
Troy.....	72,300	4	149	53	.73	0		
Watertown.....	33,400	5	288	172	5.15	0		
Watervliet.....		3	6	21		0		
White Plains.....		5	97	179		0		
North Carolina:								
Asheville.....		5	55	73		0		
Durham.....	45,700			435	9.52	0		
Gastonia.....				8		0		
Greensboro.....	50,300	5	154	288	5.73	0		
New Bern.....		4	3	23		0		
Raleigh.....		5	223	434		0		
Rocky Mount.....		4	19	13		0		
Wilmington.....	38,400	4	147	135	3.52	0		
Wilson.....				50		0		
Winston-Salem.....	77,100	5	211	217	2.81	0		

¹ State census, 1925.

CHICKEN POX—Continued

City	Estimated population, July 1, 1927	Average, 1922-1926		1927				
		Number of years	Cases	Cases re- ported	Cases per 1,000 inhab- itants	Deaths regis- tered	Deaths per 1,000 inhab- itants	Cases reported for each death regis- tered
Ohio:								
Ashland		1	4	10		0		
Ashtabula		5	32	26		0		
Barberton		5	12	28		0		
Bellefontaine		1	25	6		0		
Bucyrus		5	21	10		0		
Cambridge		4	16	19		0		
Campbell		4	52	8		0		
Chillicothe		5	13	11		0		
Cleveland Heights		5	304	180		0		
Conneaut		3	24	16		0		
Coshocton		2	17	12		0		
Cuyahoga Falls		5	62	79		0		
East Cleveland		5	234	368		0		
East Liverpool		5	4	4		0		
Elyria		4	58	85		0		
Findlay		5	94	55		0		
Hamilton	43,800	5	18	45	1.03	0		
Kenmore		5	79	242		0		
Lakewood	62,200	4	64	110	1.77	2	0.03	55.0
Lancaster		4	2	2		0		
Lima	48,700	5	108	121	2.48	0		
Lorain	44,000	5	233	195	4.43	0		
Mansfield		5	230	194		0		
Marion		3	2	10		0		
Martins Ferry		5	10	2		0		
Newark		4	155	164		0		
New Philadelphia				4		0		
Niles		4	36	47				
Norwood		5	36	23		0		
Piqua		5	21	3		0		
Salem		5	81	106		0		
Sandusky		5	169	209		0		
Springfield	71,600	5	176	195	2.72	0		
Steubenville		5	10	14		0		
Tiffin		2	45	66		0		
Warren		3	35	80		0		
Zanesville		5	37	1		0		
Oklahoma:								
Sapulpa		2	13	25		0		
Oregon:								
Salem		1	75	99		0		
Pennsylvania:								
Altoona	67,800	5	133	333	4.91	0		
Beaver Falls		5	29	38		0		
Berwick		2	54	21		0		
Bethlehem	66,000	4	196	185	2.80	0		
Braddock		5	36	68		0		
Bradford		4	55	113		0		
Butler		5	80	97		0		
Carbondale		5	8	2		0		
Carlisle		5	70	15		0		
Carnegie		5	25	74		0		
Chambersburg		5	40	57		0		
Charleroi		5	33	7		0		
Clairton		4	46	95		0		
Coatesville		5	35	10		0		
Columbia		2	4	16				
Connellsville		5	18	51		0		
Dickson				1		0		
Donora		4	13	10		0		
Easton	37,900	4	71	176	4.64	0		
Ellwood City		1	35	53		0		
Farrell		5	59	25		0		
Greensburg		3	17	27				
Harrisburg	85,700	5	370	384	4.48	0		
Hazleton	37,500	5	54	54	1.44	0		
Homestead		5	23	36				
Jeannette		5	22	10		0		
Kingston		4	95	172		0		
Lancaster	57,700	5	352	309	5.36	0		
Lansford		3	5	4				
Latrobe		1	12	56		0		

CHICKEN POX—Continued

City	Estimated population, July 1, 1927	Average, 1922-1926		1927				
		Number of years	Cases	Cases re- ported	Cases per 1,000 inhab- itants	Deaths regis- tered	Deaths per 1,000 inhab- itants	Cases report- ed for each death regis- tered
Pennsylvania—Continued.								
Lebanon		1	65	102				
Lewistown		3	39	33		0		
McKeesport	49,900	5	38	33	0.66	0		
Mahanoy City				4				
Monessen		5	39	51		0		
Nanticoke		4	3			3		
New Castle	51,600	5	68	33	.64			
Norristown	35,800	5	131	177	4.94	0		
North Braddock		5	29	8		0		
Oil City		5	156	213		0		
Phoenixville		4	27	87		0		
Plymouth		4	8	11				
Sharon		5	76	131		0		
Steelton		4	47	22				
Swissvale		5	69	17		0		
Warren		4	161	305		0		
Washington		4	89	181		0		
West Chester		5	66	95		0		
Williamsburg				8				
Williamsport	43,600	2	262	342	7.84			
Windber		2	26	42		0		
Woodlawn		5	66	187		0		
York	49,600	4	111	121	2.44	0		
Rhode Island:								
Central Falls		1	4	14				
Cranston	36,600	4	8	15	.41	0		
Westerly		2	15	6				
Woonsocket	52,300	1	2	1	.02	0		
South Carolina:								
Charleston	75,000	3	32	59	.79	0		
Columbia	50,000	4	127	199	3.98	0		
Spartanburg		3	24	35		0		
Sumter		3	7	2		0		
South Dakota:								
Aberdeen		5	153	158				
Sioux Falls		5	73	40		0		
Watertown				27				
Texas:								
Amarillo		3	43	30		1		30.0
Cleburne		1	40	75		0		
Galveston	49,900	5	10	2	.04	0		
Tyler		5	20	1		0		
Waco	45,700	5	44	31	.68	0		
Utah:								
Ogden	38,300	5	256	107	2.79			
Provo		4	92	124		0		
Vermont:								
Barre		5	26	44		0		
Bennington		3	47	88		0		
Virginia:								
Alexandria		5	46	50		0		
Charlottesville		4	18	40		0		
Danville		5	40	19		0		
Lynchburg	38,600	4	178	340	8.81	0		
Newport News	51,700	5	142	384	7.43	0		
Petersburg	37,100	5	25	41	1.11	0		
Roanoke	63,200	4	116	145	2.29	0		
Suffolk		1	37	24		0		
Washington:								
Aberdeen		5	14	6		0		
Yakima		5	188	107		0		
West Virginia:								
Bluefield		3	47	30		0		
Charleson	53,400	5	112	147	2.75	0		
Clarksburg		5	256	489		1		489.0
Fairmont		5	39	25		0		
Huntington	66,900	4	18	3	.04			
Wheeling		5	221	290		0		
Wisconsin:								
Beloit		5	177	167		0		
Eau Claire		5	114	190		0		
Fond du Lac		5	15	23		0		

CHICKEN POX—Continued

City	Estimated population, July 1, 1927	Average, 1922-1926		1927				
		Num-ber of years	Cases	Cases re-ported	Cases per 1,000 inhab-itants	Deaths reg-istered	Deaths per 1,000 inhab-itants	Cases reported for each death reg-istered
Wisconsin—Continued.								
Green Bay.....	35,500	5	45	56	1.58	0	-----	-----
Janesville.....	-----	5	105	160	-----	0	-----	-----
Kenosha.....	54,600	5	384	542	9.93	0	-----	-----
La Crosse.....	30,400	4	191	93	3.06	0	-----	-----
Madison.....	48,800	5	408	465	9.53	0	-----	-----
Manitowoc.....	-----	4	21	58	-----	0	-----	-----
Oshkosh.....	33,200	5	91	116	3.49	0	-----	-----
Racine.....	71,300	5	290	441	6.19	0	-----	-----
Sheboygan.....	34,500	5	41	24	.70	0	-----	-----
Stevens Point.....	-----	-----	-----	44	-----	0	-----	-----
Superior.....	-----	5	50	82	-----	0	-----	-----
Waukesha.....	-----	3	45	35	-----	0	-----	-----
Wausau.....	-----	5	95	119	-----	0	-----	-----
West Allis.....	-----	5	37	68	-----	0	-----	-----
Wyoming:								
Casper.....	-----	1	149	83	-----	0	-----	-----
Cheyenne.....	-----	2	55	15	-----	0	-----	-----

DENGUE

City	Cases reported, 1927	Deaths registered, 1927	City	Cases reported, 1927	Deaths registered, 1927
Alabama:			Louisiana:		
Tuscaloosa.....	1	0	Lake Charles.....	2	0
Georgia:			South Carolina:		
Savannah.....	5	0	Charleston.....	191	0

DIPHTHERIA

City	Estimated population, July 1, 1927	Estimated expectancy		1927				
		Number of years	Cases	Cases re-ported	Cases per 1,000 inhab-itants	Deaths regis-tered	Deaths per 1,000 inhab-itants	Fatal ities per 100 cases
Alabama:								
Bessemer.....		2	25	49		2		4.1
Florence.....		3	8	6		0		
Gadsden.....		1	17	18		1		5.6
Mobile.....	67,700	7	65	37	0.55	2	0.03	5.4
Selma.....				23		1		4.3
Tuscaloosa.....		1	18	32		2		6.2
Arizona:								
Tucson.....		4	20	9		3		33.3
Arkansas:								
Fort Smith.....		5	48	41		1		2.4
Helena.....				37				
Hot Springs.....		4	7	19		1		5.2
Little Rock.....	77,500	7	77	42	.54	4	.05	9.5
California:								
Alhambra.....		3	43	64		0		
Bakersfield.....		7	42	7		0		
Berkeley.....	69,400	7	100	151	2.18	4	.06	2.6
Chico.....		3	3	70		1		1.4
Eureka.....		7	24	2		0		
Fresno.....	62,200	6	100	36	.58	1	.02	2.8

DIPHTHERIA—Continued

City	Estimated population, July 1, 1927	Estimated expectancy		1927				
		Number of years	Cases	Cases re- ported	Cases per 1,000 inhab- itants	Deaths regis- tered	Deaths per 1,000 inhab- itants	Fatal ities per 100 cases
California—Continued.								
Glendale.....		7	79	25		2		8.0
Modesto.....				14		0		
Pasadena.....	60,500	7	71	23	0.38	1	0.02	4.3
Richmond.....		7	44	13		1		7.7
Riverside.....		7	36	18		2		11.1
Sacramento.....	74,600	7	127	90	1.21	4	.05	4.4
San Jose.....	44,800	7	51	17	.38	1	.02	5.9
Santa Ana.....		6	48	69		6		8.7
Santa Barbara.....		3	38	25		2		8.0
Stockton.....	49,800	4	100	62	1.24	0		
Vallejo.....		5	18	7		0		
Colorado:								
Boulder.....		7	13	4		0		
Colorado Springs.....		7	23	4		1		25.0
Greeley.....		4	7	10		3		30.0
Pueblo.....	44,100	6	190	56	1.27	5	.11	8.9
Trinidad.....		7	17	10		0		
Connecticut:								
Bristol.....		6	38	38		2		5.3
Derby.....		3	16	1		1		100.0
Fairfield.....		6	19	20				
Greenwich.....		7	14	29		1		3.4
Manchester.....		6	12	86		5		5.8
New Britain.....	71,200	7	181	35	.49	2	.03	5.7
New London.....		6	25	16		1		6.2
Norwich.....		7	45	45		3		6.7
Shelton.....		2	10	6				
Stamford Town.....				19		4		21.1
Stratford.....		6	25	20		3		15.0
Florida:								
Orlando.....		1	4	19		1		5.3
West Palm Beach.....		3	5	9		1		11.1
Georgia:								
Athens.....		5	34	40		0		
Augusta.....	56,200	5	46	45	.80	2	.04	4.4
Brunswick.....		7	5	5		3		20.0
Columbus.....	45,800					1	.07	
Macon.....	60,100	7	49	45	.75	2	.03	4.4
Savannah.....	99,700	7	52	74	.74	6	.06	8.1
Waycross.....		1	8	8		0		
Idaho:								
Boise.....		7	17	13		0		
Pocatello.....		6	48	3		0		
Illinois:								
Alton.....		6	76	19		1		5.3
Aurora.....	46,500	6	150	14	.30	2	.04	14.3
Berwyn.....		5	33	18		2		11.1
Bloomington.....		7	22	1		0		
Blue Island.....		7	25	6		1		16.7
Champaign.....		7	9	4		1		25.0
Chicago Heights.....		5	15	40		5		12.5
Cicero.....	68,500	7	113	76	1.11	9	.13	11.8
Danville.....	38,200	7	18	12	.31	2	.05	16.7
Decatur.....	56,000	4	51	74	1.32	6	.11	8.1
East Moline.....		3	8	6		0		
East St. Louis.....	73,100	7	111	153	2.09	7	.10	4.6
Elgin.....	35,000	7	22	2	.06	0		
Evanston.....	46,400	7	46	34	.73	7	.15	20.6
Forest Park.....		2	45			1		
Freeport.....		6	17	4		0		
Galesburg.....		7	21	9		0		
Jacksonville.....		7	11	27		1		3.7
Joliet.....	41,500	5	20	10	.24	1	.02	10.0
Kewanee.....		5	10	8				
Marion.....		1	14	4		0		
Maywood.....		7	37	28		3		10.7
Moline.....	35,100	7	41	9	.26	2	.06	22.2
Oak Park.....	55,600	7	59	36	.65	7	.13	19.4
Pekin.....		7	21	5		0		
Peoria.....	83,500	7	26	15	.18	2	.02	13.3
Quincy.....	39,500	7	32	12	.30	0		
Rockford.....	80,900	7	80	21	.26	2	.02	9.5
Rock Island.....	41,900	7	60	30	.72	2	.05	6.7

DIPHTHERIA—Continued

City	Estimated population, July 1, 1927	Estimated expectancy		1927				
		Number of years	Cases	Cases reported	Cases per 1,000 inhabitants	Deaths registered	Deaths per 1,000 inhabitants	Fatalities per 100 cases
Illinois—Continued.								
Springfield.....	66,400	7	64	51	0.77	4	0.06	7.8
Urbana.....		5	7	2		0		
Waukegan.....		6	18	24				
Indiana:								
Anderson.....		7	21	15		1		6.7
Connersville.....		3	15	15		0		
Crawfordsville.....		7	5	1		0		
East Chicago.....	49,100	7	69	76	1.55			
Elkhart.....		6	21	73		4		5.5
Elwood.....		7	6	2		0		
Evansville.....	96,600	1	67	47	.49	7	.07	14.9
Gary.....	85,200	6	82	40	.47	4	.05	10.0
Huntington.....		5	18	12		2		16.7
Kokomo.....		7	24	19	.49	2		10.5
La Fayette.....	39,100	7	39	43		8	.05	18.6
La Porte.....		5	20	6		2		33.3
Logansport.....		7	14	1		0		
Michigan City.....		6	33	27		1		3.7
Mishawaka.....		7	15	17		1		5.9
Muncie.....	45,800	7	54	43	.94	3	.07	7.0
New Albany.....		6	22	47		3		6.4
New Castle.....		6	7	2		0		
Richmond.....		7	24	5		2		40.0
South Bend.....	84,200	6	93	42	.50	2	.02	4.8
Terre Haute.....	72,700	7	97	39	.54	6	.08	15.4
Vincennes.....				16		0		
Wabash.....		2	24	1		0		
Whiting.....		5	14	20				
Iowa:								
Boone.....		4	10	4		0		
Burlington.....		7	47	23		1		4.3
Cedar Rapids.....	54,100	7	49	23	.43	6	.11	26.1
Clinton.....		4	54	16		1		6.2
Davenport.....	152,600	3	34	35	.67			
Dubuque.....	41,900	6	62	23	.55			
Iowa City.....		6	20	23				
Muscatine.....		6	12	7		0		
Ottumwa.....		4	30	4		1		25.0
Waterloo.....	37,000	5	16	36	.97	1	.03	2.8
Kansas:								
Arkansas City.....		2	4	11		1		9.1
Coffeyville.....		7	30	15		3		20.0
Eldorado.....		6	26	4		0		
Emporia.....		4	22	6		0		
Fort Scott.....		7	39	11		0		
Hutchinson.....		5	27	3		0		
Lawrence.....		7	21	3		1		33.3
Leavenworth.....		7	28	22				
Parsons.....		6	26	8		2		25.0
Topeka.....	61,900	7	150	109	1.76	4	.06	3.7
Kentucky:								
Covington.....	58,700	5	52	54	.92	3	.05	5.6
Lexington.....	45,100	5	44	22	.46	4	.08	18.2
Paducah.....		7	20	20		1		5.0
Louisiana:								
Baton Rouge.....		5	37	12		0		
Lake Charles.....		4	18	17		0		
Monroe.....		1	54	36				
Shreveport.....	78,000	5	36	73	.94	2	.03	2.7
Maine:								
Auburn.....		6	10	34		2		5.9
Bangor.....		5	17	9		1		11.1
Biddeford.....		7	17	3		1		33.3
Lewiston.....	36,100	7	37	20	.55	1	.03	5.0
Portland.....	77,500	7	134	46	.59	4	.05	8.7
South Portland.....		2	8	21				
Waterville.....		7	24	4		0		
Westbrook.....		1	25	3		0		
Maryland:								
Cumberland.....		6	39	25		1		4.0
Frederick.....		1	18	19		0		

1 State census, 1925.

DIPHTHERIA—Continued

City	Estimated population, July 1, 1927	Estimated expectancy		1927				
		Number of years	Cases	Cases reported	Cases per 1,000 inhabitants	Deaths registered	Deaths per 1,000 inhabitants	Fatalities per 100 cases
Massachusetts:								
Adams.....		7	11	36		5		13.9
Arlington.....		7	25	10		1		10.0
Athol.....		2	2	1		0		
Attleboro.....		7	11	23		2		8.7
Beverly.....		7	21	21		0		
Braintree.....		6	38	5		0		
Brockton.....	165,300	7	183	30	0.46	0		
Brookline.....	44,800	7	35	9	.20	0		
Chelsea.....	49,000	7	78	28	.57	2	0.04	7.1
Chicopee.....	44,300	7	70	47	1.06	2	.05	4.3
Clinton.....		7	9	2		0		
Danvers.....		7	14	12		1		8.3
Easthampton.....		7	12	2		0		
Everett.....	42,900	7	103	46	1.07	2	.05	4.3
Frammingham.....		7	14	7		0		
Gardner.....		7	7	1		0		
Gloucester.....		1	58	23		2		8.7
Greenfield.....		6	16	7		1		14.3
Haverhill.....	149,200	7	151	80	1.63	3	.06	3.7
Lawrence.....	193,500	7	146	35	.37	7	.07	20.0
Leominster.....		7	22	41		2		4.9
Malden.....	52,900	7	148	53	1.00	3	.06	5.7
Marlboro.....		6	13	63		4		6.3
Medford.....	51,300	7	66	34	.66	0		
Melrose.....		7	25	5		0		
Methuen.....		7	25	8		0		
Milford.....		7	9	2		0		
Milton.....		2	4	6		0		
Natick.....		6	5	18		0		
Newburyport.....		7	11	1		0		
Newton.....	56,000	7	49	24	.43	0		
North Adams.....		7	14	9		1		11.1
Northampton.....		7	7	14		5		35.7
Northbridge.....		7	6	3		0		
Norwood.....		5	31	6				
Palmer.....		3	7	17				
Peabody.....		7	43	19		0		
Pittsfield.....	49,100	7	92	18	.37	3	.06	16.7
Plymouth.....		6	12	6		1		
Quincy.....	65,300	7	129	54	.83	1	.02	1.9
Revere.....	35,200	2	86	55	1.56	0		
Salem.....	42,900	7	121	141	3.29	11	.26	7.8
Saugus.....		7	11	10		0		
Southbridge.....		7	14	14		0		
Taunton.....	40,200	5	12	13	.32	1	.02	7.7
Wakefield.....		7	22	5		1		20.0
Waltham.....	36,400	7	74	87	2.39	5	.14	5.7
Watertown.....		7	53	43				
Webster.....		5	7	10				
Westfield.....		7	30	78		5		6.4
Weymouth.....				14		0		
Winchester.....		6	16	2				
Winthrop.....		7	9	10		0		
Woburn.....		6	27	16				
Michigan:								
Adrian.....		4	12	3		0		
Ann Arbor.....		7	90	98		5		5.1
Bay City.....	49,400	7	103	66	1.34	0		
Benton Harbor.....		7	27	5		1		20.0
Escanaba.....			6	6		0		
Hamtramck.....	93,800	7	146	51	.54	9	.10	17.6
Highland Park.....	81,700	7	77	49	.60	5	.06	10.2
Holland.....		5	9	3				
Ironwood.....		7	20	6		1		16.7
Ishpeming.....		7	17	8		1		12.5
Jackson.....	61,700	7	65	11	.18	3	.05	27.3
Kalamazoo.....	55,500	6	84	32	.58	7	.13	21.9
Lansing.....	75,600	7	191	38	.50	7	.09	18.4
Marquette.....		6	7	4		0		
Mount Clemens.....		2	32	27		0		
Muskegon.....	45,500	7	110	17	.37	2	.04	11.8
Pontiac.....	54,000	7	147	201	3.72	4	.07	2.0

¹ State census, 1925.² Includes 5 nonresidents.³ Includes 2 nonresidents.

DIPHTHERIA—Continued

City	Estimated population, July 1, 1927	Estimated expectancy		1927				
		Number of years	Cases	Cases reported	Cases per 1,000 inhabitants	Deaths registered	Deaths per 1,000 inhabitants	Fatalities per 100 cases
Michigan—Continued.								
Port Huron.....		7	35	6		1		16.7
River Rouge.....		3	24	14		1		7.1
Saginaw.....	74,400	7	89	93	1.25	3	0.04	3.2
Wyandotte.....		2	48	40		3		7.5
Minnesota:								
Albert Lea.....		2	8			1		
Austin.....		6	1	10				
Brainerd.....		1	13	1		1		100.0
Faribault.....		6	37	16		1		6.2
Hibbing.....		7	10	16		3		18.7
Mankato.....		5	3	10		1		10.0
St. Cloud.....		5	94	22		1		4.5
Mississippi:								
Jackson.....		4	30	34		3		8.8
Missouri:								
Cape Girardeau.....		1	10	20		0		
Hannibal.....		2	29	37		2		5.4
Independence.....		3	58	11		0		
Joplin.....		6	32	43				
Moberly.....		6	29	4		0		
St. Joseph.....	78,500	7	84	18	.23	2	.03	11.1
Springfield.....	51,200	6	81	113	2.21			
Montana:								
Anaconda.....		5	1	1		0		
Billings.....		2	14	7		0		
Butte.....	43,300	6	38	27	.62	3	.07	11.1
Great Falls.....		6	79	10		1		10.0
Helena.....		5	20	7		0		
Nebraska:								
Grand Island.....		7	5	1		0		
Lincoln.....	69,900	7	71	58	.83	2	.03	3.4
North Platte.....		5	9	2		0		
Nevada:								
Reno.....		7	1	13		0		
New Hampshire:								
Berlin.....		6	5	35		0		
Claremont.....		3	22	27		2		7.4
Concord.....		7	11	4		1		25.0
Dover.....		7	5	1		0		
Keene.....		7	6	1		0		
Laconia.....		1	4	2		0		
Manchester.....	84,800	7	189	9	.11	2	.02	22.2
Nashua.....		7	22	5		1		20.0
New Jersey:								
Asbury Park.....		6	7	3		0		
Atlantic City.....	54,200	2	32	90	1.66	6	.11	6.7
Bayonne.....	93,100	6	111	72	.77	8	.09	11.1
Belleville.....		7	24	50		2		4.0
Bloomfield.....		7	16	18		1		5.6
Bridgeton.....		6	16	13				
Cartaret.....		3	15	40		1		2.5
Clifton.....		6	83	35		1		2.9
Collingswood.....		2	5	12				
Dover.....		3	4	10		1		10.0
East Orange.....	63,300	7	39	42	.66	0		
Englewood.....		6	12	21				
Garfield.....		5	53	59		2		3.4
Hackensack.....		7	21	29		0		
Harrison.....		7	32	15				
Hoboken.....		5	88	231		17		7.4
Irvington.....		6	34	26		3		11.5
Kearny.....		6	39	22		0		
Lodi.....		2	10	32		1		3.1
Long Branch.....		7	9	17		1		5.9
Millville.....		1	8	4		0		
Montclair.....		7	24	47		1		2.1
Morristown.....		7	13	27		2		7.4
New Brunswick.....	39,900	7	57	45	1.13	2	.05	4.4
Nutley.....		1	9	9		0		
Orange.....	36,100	7	25	44	1.22	1	.03	2.3
Passaic.....	70,800	7	181	110	1.55	1	.01	.9
Perth Amboy.....	49,100	7	136	55	1.12	6	.12	10.9
Phillipsburg.....		5	36	11		0		
Plainfield.....		7	35	5		1		20.0

DIPHTHERIA—Continued

City	Estimated population, July 1, 1927	Estimated expectancy		1927				
		Number of years	Cases	Cases re- ported	Cases per 1,000 inhab- itants	Deaths regis- tered	Deaths per 1,000 inhab- itants	Fatal- ities per 100 cases
New Jersey—Continued.								
Rahway		7	37	4		2		50.0
Ridgefield Park		3	8	7		1		14.3
Rutherford		3	10	26		2		7.7
Summit		7	8	5		1		20.0
West New York		7	73	114		3		2.6
West Orange		7	19	11		1		9.1
New Mexico:								
Albuquerque		4	25	12		2		16.7
New York:								
Amsterdam	35,900	5	51	5	0.14	1	0.03	20.0
Auburn	135,700	5	98	11	.31	0		
Binghamton	73,900	7	54	27	.37	3	.04	11.1
Cohoes		7	25	32		2		6.2
Corning		6	21	4		0		
Cortland		6	17	2		0		
Dunkirk		7	18	6		0		
Elmira	49,500	5	33	5	.10	0		
Freeport		2	8	7		0		
Geneva		6	36	3		0		
Gloversville		7	18	6		1		16.7
Hornell		7	6	1		0		
Ithaca		7	13	8		0		
Jamestown	45,100	7	71	7	.16	0		
Kingston		6	22	5		1		20.0
Lackawanna		6	68	79		3		3.8
Little Falls		7	17	9		1		11.1
Lockport		7	8	4		1		25.0
Mount Vernon	53,300	7	45	41	.77	1	.02	2.4
New Rochelle	47,300	6	45	62	1.31	1	.02	1.6
Newburgh	30,400	7	45	5	.16	0		
Niagara Falls	66,600	7	139	105	1.58	9	.14	8.6
North Tonawanda		7	29	4				
Olean		7	33	5		0		
Ossining		3	41	1		0		
Pekskill		7	27	5		0		
Poughkeepsie	35,900	7	31	62	1.73	3	.08	4.8
Rome		7	43	6		0		
Saratoga Springs		7	15	15		2		13.3
Schenectady	93,200	7	153	17	.18	1	.01	5.9
Troy	72,300	7	111	26	.36	0		
Watertown	33,400	7	24	3	.09	0		
Watervliet		5	55	5		0		
White Plains		7	23	11		0		
North Carolina:								
Asheville		7	50	30		6		
Durham	45,700	1	64	67	1.47	5	.11	7.5
Gastonia				20		2		10.0
Greensboro	50,300	5	86	79	1.57	3	.06	3.8
Raleigh		7	79	58		2		3.4
Rocky Mount		5	94	43		2		4.7
Wilmington	38,400	7	38	38	.99	2	.05	5.3
Wilson				5		0		
Winston-Salem	77,100	6	121	92	1.19	5	.06	5.4
Ohio:								
Alliance		4	29	25		2		8.0
Ashtabula		7	23	31		3		9.7
Barberton		7	29	101		2		2.0
Bellefontaine		1	2	1		0		
Bucyrus		7	13	15		0		
Cambridge		5	19	4		0		
Campbell		6	15	18		2		11.1
Chillicothe		7	25	10		1		10.0
Cleveland Heights		5	13	27		0		
Conneaut		3	7	6		1		16.7
Coshocton		5	10	2		0		
Cuyahoga Falls		6	21	10		1		10.0
East Cleveland		7	33	25		1		4.0
East Liverpool		5	17	32		3		9.4
Elyria		7	19	2		0		
Findlay		7	14	11		1		9.1
Hamilton	43,800	7	32	44	1.00	2	.05	4.5
Kenmore		6	22	13		0		
Lakewood	62,200	4	36	136	2.19	2	.03	1.5

¹ State census, 1925.² Includes 1 nonresident.

DIPHTHERIA—Continued

City	Estimated population, July 1, 1927	Estimated expectancy		1927				
		Number of years	Cases	Cases re- ported	Cases per 1,000 inhab- itants	Deaths regis- tered	Deaths per 1,000 inhab- itants	Fatal- ities per 100 cases
Ohio—Continued.								
Lancaster.....		6	14	13		0		
Lima.....	48,700	7	37	73	1.50	4	0.08	5.5
Lorain.....	44,000	7	69	34	.77	5	.11	14.7
Mansfield.....		7	32	3		1		33.3
Marion.....		5	36	7		0		
Martins Ferry.....		7	22	20		2		10.0
Middletown.....		7	59	62		2		3.2
Newark.....		6	24	13		1		7.7
New Philadelphia.....		4	11	3		1		33.3
Niles.....		6	29	11		1		9.1
Norwood.....		7	13	5		1		20.0
Piqua.....		7	9	7		1		14.3
Salem.....		7	18	4		0		
Sandusky.....		7	31	3		0		
Springfield.....	71,600	7	61	14	.20	1	.01	7.1
Steubenville.....		7	35	40		2		5.0
Warren.....		5	39	66		6		9.1
Zanesville.....		7	24	11		0		
Oklahoma:								
Bartlesville.....		2	31	10		4		40.0
Sapulpa.....		2	9	11		1		9.1
Oregon:								
Salem.....		2	22	26		0		
Pennsylvania:								
Altoona.....	67,800	7	101	50	.74	6	.09	12.0
Beaver Falls.....		6	25	16		0		
Berwick.....		3	31	3		0		
Bethlehem.....	66,000	6	149	70	1.06	6	.09	8.6
Braddock.....		7	53	15		4		26.7
Bradford.....		6	9	12		0		
Butler.....		7	47	20		0		
Canonsburg.....		5	26	12		0		
Carbondale.....		7	18	10		0		
Carlisle.....		7	6	4		0		
Carnegie.....		6	15	8		0		
Chambersburg.....		7	5	3		3		100.0
Charleroi.....		7	18	9		1		11.1
Clairton.....		4	8	16		1		6.2
Coatesville.....		7	9	9		0		
Columbia.....		2	2	3				
Connellsville.....		7	32	3		0		
Dickson.....		3	61	25		1		4.0
Donora.....		6	23	16		1		6.2
Duquesne.....		5	23	8		0		
Easton.....	37,900	6	42	18	.47	0		
Ellwood City.....		1	1	10		0		
Farrell.....		6	36	15		0		
Greensburg.....		3	8	10				
Harrisburg.....	85,700	7	138	23	.27	1	.01	4.3
Hazleton.....	37,500	7	32	17	.45	1	.03	5.9
Homestead.....		7	25	22				
Jeannette.....		7	25	22		1		4.5
Kingston.....		4	16	22		1		4.5
Lancaster.....	57,700	7	118	33	.57	2	.03	6.1
Lansford.....		3	11	11				
Latrobe.....		1	8	14		1		7.1
Lebanon.....		2	117	18				
Lewistown.....		3	26	9		1		11.1
McKeesport.....	49,900	7	49	22	.44	3	.06	13.6
Mahanoy City.....		1	28	5				
Monessen.....		7	42	13		1		7.7
Nanticoke.....		6	47	2		1		50.0
New Castle.....	51,600	7	52	16	.31			
Norristown.....	35,800	7	58	57	1.59	3	.08	5.3
North Braddock.....		7	37	20		2		10.0
Oil City.....		7	27	9		0		
Phoenixville.....		4	10	5		0		
Plymouth.....		6	30	22				
Sharon.....		6	44	7		0		
Steelton.....		6	17	3				
Swissvale.....		7	33	36		2		5.6
Warren.....		6	12	14		3		21.4
Washington.....		6	42	10		1		10.0
West Chester.....		7	11	9		0		
Williamsport.....	43,600	3	74	36	.83			
Windber.....		2	27	5		1		20.0
Woodlawn.....		7	25	18		0		
York.....	49,600	6	66	14	.28	1	.02	7.1

DIPHTHERIA—Continued

City	Estimated population, July 1, 1927	Estimated expectancy		1927				
		Num- ber of years	Cases	Cases re- ported	Cases per 1,000 inhab- itants	Deaths regis- tered	Deaths per 1,000 inhab- itants	Fata- lities per 100 cases
Rhode Island:								
Central Falls.....		5	15	7				
Cranston.....	36,600	7	16	16	0.44	0		
Newport.....		7	93	5		0		
Westerly.....		2	4	2				
Woonsocket.....	32,300	3	8	52	.99	10	0.19	19.2
South Carolina:								
Anderson.....		4	16	34		1		2.9
Charleston.....	75,000	3	55	27	.36	1	.01	3.7
Columbia.....	50,000	6	50	46	.92	4	.08	8.7
Greenville.....		6	39	22		0		
Spartanburg.....		4	42	33		3		9.1
Sumter.....		3	14	11		1		9.1
South Dakota:								
Sioux Falls.....		7	36	4		0		
Watertown.....		1	1	3				
Texas:								
Amarillo.....		6	23	15		2		13.3
Austin.....	38,800	4	47	150	3.87	7	.18	4.7
Beaumont.....	54,400	5	46			4	.07	
Galveston.....	49,900	7	44	40	.80	1	.02	2.5
Orange.....		2	11	9				
San Angelo.....				6				
Temple.....		1	5	8				
Texarkana.....		6	14	25		4		16.0
Tyler.....		7	11	14		1		7.1
Waco.....	45,700	7	35	92	2.01	5	.11	5.4
Utah:								
Ogden.....	38,300	7	62	46	1.20			
Provo.....		4	16	11		1		9.1
Vermont:								
Barre.....		7	4	8		0		
Bennington.....		3	3	3		0		
Virginia:								
Alexandria.....		7	10	12		0		
Charlottesville.....		6	15	9		0		
Danville.....		7	69	52		2		3.8
Lynchburg.....	38,600	6	93	161	4.17	4	.10	2.5
Newport News.....	51,700	7	22	18	.35	0		
Petersburg.....	37,100	7	58	33	.89	3	.08	9.1
Portsmouth.....	60,700	7	23	23	.38	1	.02	4.3
Roanoke.....	63,200	6	143	68	1.08	1	.02	1.5
Suffolk.....		1	3	11		4		36.4
Washington:								
Aberdeen.....		7	4	2		0		
Everett.....		6	16			3		
Yakima.....		7	17	7		3		42.9
West Virginia:								
Bluefield.....		4	44	12		2		16.7
Charleston.....	53,400	7	60	32	.60	1	.02	3.1
Fairmont.....		7	66	16		3		18.7
Huntington.....	66,900	4	80	69	1.03			
Morgantown.....		2	19			3		
Wheeling.....		7	101	30		1		3.3
Wisconsin:								
Beloit.....		7	39	6		0		
Eau Claire.....		7	18	8		0		
Fond du Lac.....		7	102	37		1		2.7
Green Bay.....	35,500	7	70	23	.65	2	.06	8.7
Janesville.....		7	26	14		0		
Kenosha.....	54,600	7	69	23	.42	2	.04	8.7
La Crosse.....	30,400	6	13	8	.26	1	.03	12.5
Madison.....	48,800	7	71	31	.64	0		
Manitowoc.....		5	22	22		1		4.5
Oshkosh.....	33,200	6	30	6	.18	1	.03	16.7
Racine.....	71,300	7	127	83	1.16	2	.03	2.4
Sheboygan.....	34,500	6	109	9	.26	0		
Stevens Point.....				5		0		
Superior.....		6	40	21		3		14.3
Waukesha.....		3	5	8		1		12.5
Wausau.....		7	19	2		1		50.0
West Allis.....		7	51	59		4		6.8
Wyoming:								
Casper.....		1	10	6		0		
Cheyenne.....		2	10	1		0		

* Nonresident.

INFLUENZA

City	Estimated population, July 1, 1927	Cases reported, 1927	Cases per 1,000 inhabitants	Deaths registered, 1927	Deaths per 1,000 inhabitants	Cases reported for each death registered
Alabama:						
Bessemer		16		8		2.0
Florence		6		3		2.0
Gadsden		40		0		
Mobile	67,700			36	0.53	
Selma				7		
Tuscaloosa		18		0		
Arkansas:						
Fort Smith				1		
Helena		28				
Hot Springs				1		
Little Rock	77,500	15	0.19	11	.14	1.4
California:						
Alhambra		11		0		
Bakersfield		1		1		1.0
Berkeley	69,400	32	.46	9	.13	3.6
Chico				4		
Fresno	62,200			1	.02	
Glendale		9		3		3.0
Modesto		1		0		
Pasadena	60,500	15	.25	6	.10	2.5
Pomona				5		
Richmond		2		2		1.0
Riverside		12		1		12.0
Sacramento	74,600			15	.20	
San Jose	44,800	3	.07	0		
Santa Ana		10		8		1.2
Santa Barbara		2		1		2.0
Stockton	49,800	5	.10	3	.06	1.7
Vallejo				2		
Colorado:						
Boulder		4		0		
Colorado Springs		5		5		1.0
Greeley				3		
Pueblo	44,100			6	.14	
Trinidad				5		
Connecticut:						
Derby				3		
Fairfield		1				
Greenwich		7		1		7.0
Manchester		1		0		
New Britain	71,200	23	.32	8	.11	2.9
New London		7		1		7.0
Stamford Town				4		
Florida:						
Orlando				6		
Georgia:						
Athens		1		1		1.0
Augusta	56,200			28	.50	
Brunswick		9		0		
Columbus	45,800			5	.11	
Macon	60,100			5	.08	
Savannah	99,700	519	5.21	39	.39	13.3
Waycross		21		0		
Illinois:						
Alton		4		1		4.0
Aurora	46,500	2	.04	1	.02	2.0
Berwyn		15		0		
Blue Island		2		2		1.0
Chicago Heights		1		0		
Cicero	68,500	1	.01	0		
Danville	38,200	25	.65	0		
East Moline		1		1		1.0
East St. Louis	73,100			5	.07	
Elgin	35,000	9	.26	8	.26	1.1
Evanston	46,400	4	.09	1	.02	4.0
Forest Park				1		
Jacksonville		5		0		
Joliet				1		
La Salle	41,500			1	.02	
Maywood				3		
Moline	35,100			1	.03	
Oak Park	55,600	3	.05	3	.05	1.0
Pekin		1		1		1.0
Peoria	83,500			19	.23	
Quincy	39,500			3	.08	
Rockford	80,900	21	.26	19	.23	1.1
Rock Island	41,900	5	.12	2	.05	2.5
Springfield	66,400	35	.53	32	.48	1.1
Urbana		25		0		

INFLUENZA—Continued

City	Estimated population, July 1, 1927	Cases reported, 1927	Cases per 1,000 inhabitants	Deaths registered, 1927	Deaths per 1,000 inhabitants	Cases reported for each death registered
Indiana:						
Anderson.....				6		
Connersville.....				6		
Kokomo.....	39,100			7	0.18	
La Fayette.....				4		
Michigan City.....				1		
Mishawaka.....		3		0		
Muncie.....	45,800			1	.02	
New Albany.....				6		
New Castle.....				2		
Richmond.....				8		
Terre Haute.....	72,700			7	.10	
Vincennes.....				13		
Wabash.....				4		
Iowa:						
Cedar Rapids.....	54,100			11	.20	
Muscatine.....		1		0		
Ottumwa.....		17		0		
Kansas:						
Arkansas City.....				4		
Chanute.....				3		
Coffeyville.....		4		3		1.3
Emporia.....		11		3		3.7
Fort Scott.....		1		1		1.0
Hutchinson.....		25		4		6.2
Lawrence.....		6		5		1.2
Leavenworth.....		100				
Parsons.....		2		2		1.0
Salina.....		4				
Topeka.....	61,900			18	.29	
Kentucky:						
Covington.....	58,700			2	.03	
Paducah.....				14		
Louisiana:						
Baton Rouge.....				8		
Lake Charles.....		4		1		4.0
Shreveport.....	78,000			18	1.10	
Maine:						
Auburn.....		5		1		5.0
Bangor.....		2		2		1.0
Bath.....		6		1		6.0
Biddeford.....		4		0		
Lewiston.....	86,100			1	.03	
Portland.....	77,500			11	.14	
Waterville.....		4		0		
Westbrook.....				1		
Maryland:						
Cumberland.....		36		9		4.0
Frederick.....		5		5		1.0
Massachusetts:						
Arlington.....		1		0		
Attleboro.....		2		2		1.0
Beverly.....		1		0		
Braintree.....		5		1		5.0
Brockton.....	² 65,300	1	0.02	1	.02	1.0
Brookline.....	44,800	10	.22	2	.04	5.0
Chelsea.....	49,000	4	.08	0		
Chicopee.....	44,300			2	.05	
Everett.....	42,900	12	.28	4	.09	3.0
Framingham.....		3		3		1.0
Gloucester.....		4		1		4.0
Greenfield.....				5		
Haverhill.....	² 49,200	13	.26	6	.12	2.2
Lawrence.....	² 93,500	8	.09	7	.07	1.1
Malden.....	52,900	10	.19	0		
Medford.....	51,300	3	.06	3	.06	1.0
Melrose.....		10		1		10.0
Methuen.....		2		2		1.0
Milton.....		1				
Newburyport.....		2		1		2.0
Newton.....	56,000			7	.12	
Northampton.....		² 8		4		4.0
Northbridge.....		10		2		5.0
Pittsfield.....	49,100	10	.20	3	.06	3.3
Quincy.....	65,300	12	.18	9	.14	1.3
Revere.....	35,200	2	.06	1	.03	2.0
Salem.....	42,900	3	.07	0		

¹ Includes 1 nonresident.² State census, 1925.³ Includes 7 nonresidents.⁴ Nonresidents.

INFLUENZA—Continued

City	Estimated population, July 1, 1927	Cases reported, 1927	Cases per 1,000 inhabitants	Deaths registered, 1927	Deaths per 1,000 inhabitants	Cases reported for each death registered
Massachusetts—Continued.						
Saugus	—	5	—	1	—	5.0
Taunton	40,200	8	0.20	1	0.02	8.0
Wakefield	—	2	—	0	—	—
Waltham	36,400	2	.05	0	—	—
Watertown	—	3	—	—	—	—
Westfield	—	2	—	1	—	2.0
Weymouth	—	5	—	0	—	—
Winthrop	—	13	—	0	—	—
Woburn	—	—	—	5	—	—
Michigan:						
Adrian	—	—	—	1	—	—
Ann Arbor	—	—	—	3	—	—
Escanaba	—	—	—	2	—	—
Highland Park	81,700	2	.02	0	—	—
Jackson	61,700	—	—	7	.11	—
Kalamazoo	55,500	—	—	3	.05	—
Lansing	75,600	—	—	4	.05	—
Marquette	—	1	—	1	—	1.0
Pontiac	54,000	12	.22	9	.17	1.3
Port Huron	—	—	—	1	—	—
River Rouge	—	—	—	1	—	—
Saginaw	74,400	—	—	9	.12	—
Minnesota:						
Brainerd	—	—	—	2	—	—
Faribault	—	—	—	7	—	—
St. Cloud	—	—	—	4	—	—
Winona	—	—	—	2	—	—
Mississippi:						
Jackson	—	1,266	—	6	—	211.0
Missouri:						
Hannibal	—	—	—	11	—	—
Independence	—	—	—	18	—	—
Moberly	—	—	—	1	—	—
St. Joseph	78,500	8	.10	8	.10	1.0
Montana:						
Anaconda	—	—	—	1	—	—
Billings	—	—	—	8	—	—
Butte	43,300	11	.25	2	.05	5.5
Great Falls	—	—	—	7	—	—
Nebraska:						
Grand Island	—	—	—	1	—	—
Lincoln	69,900	—	—	12	.17	—
North Platte	—	10	—	5	—	2.0
New Hampshire:						
Berlin	—	—	—	1	—	—
Claremont	—	—	—	3	—	—
Concord	—	—	—	7	—	—
Keene	—	4	—	0	—	—
Laconia	—	812	—	2	—	406.0
Manchester	84,800	—	—	30	.35	—
Nashua	—	—	—	5	—	—
New Jersey:						
Asbury Park	—	1	—	0	—	—
Atlantic City	54,200	1	.02	0	—	—
Bayonne	93,100	—	—	18	.19	—
Belleville	—	—	—	1	—	—
Bloomfield	—	4	—	0	—	—
Clifton	—	1	—	1	—	1.0
East Orange	63,300	19	.30	4	.06	4.7
Garfield	—	2	—	1	—	2.0
Hackensack	—	—	—	1	—	—
Harrison	—	18	—	—	—	—
Hoboken	—	—	—	3	—	—
Irvington	—	12	—	5	—	2.4
Kearny	—	33	—	0	—	—
Millville	—	2	—	1	—	2.0
Montclair	—	5	—	2	—	2.5
Nutley	—	2	—	0	—	—
Orange	36,100	6	.17	0	—	—
Passaic	70,800	23	.32	6	.08	3.8
Perth Amboy	49,100	1	.02	1	.02	1.0
Plainfield	—	—	—	4	—	—
Rahway	—	1	—	1	—	1.0
Ridgefield Park	—	1	—	1	—	1.0
West New York	—	1	—	0	—	—
West Orange	—	10	—	1	—	10.0
New Mexico:						
Albuquerque	—	8	—	1	—	8.0

INFLUENZA—Continued

City	Estimated population, July 1, 1927	Cases reported, 1927	Cases per 1,000 inhabitants	Deaths registered, 1927	Deaths per 1,000 inhabitants	Cases reported for each death registered
New York:						
Amsterdam	35,900			2	0.06	
Auburn	35,700	3	0.08	1	.03	3.0
Binghamton	73,900	10	.14	1	.01	10.0
Cohoes		1		0		
Corning				2		
Cortland		8		0		
Dunkirk				1		
Elmira	49,500	2	.04	1	.02	2.0
Endicott				1		
Geneva				2		
Johnstown		1		0		
Lackawanna				1		
Mount Vernon	53,300	9	.17	3	.06	3.0
Newburgh	30,400			1	.03	
Peekskill		1		1		1.0
Rome				4		
Saratoga Springs		40		2		20.0
Schenectady	93,200			14	.15	
North Carolina:						
Durham	45,700			16	.35	
Gastonia				5		
Greensboro	50,300			15	.30	
New Bern				1		
Raleigh				3		
Rocky Mount				1		
Wilmington	38,400			15	.39	
Winston-Salem	77,100			34	.44	
Ohio:						
Alliance		1		1		1.0
Ashland		4		4		1.0
Ashtabula				3		
Bucyrus				1		
Campbell		2		1		2.0
Cleveland Heights		1		0		
Coshocton		2		2		1.0
East Cleveland		9		0		
East Liverpool				6		
Elyria				2		
Findlay		2		2		1.0
Hamilton	43,800	52	1.19	6	.14	8.7
Kenmore		2		1		2.0
Lancaster				1		
Lima	48,700			8	.16	
Lorain	44,000			4	.09	
Mansfield		8		4		2.0
Marion		20		9		2.2
Middletown				4		
Newark				3		
Norwood				3		
Salem				4		
Sandusky		2		0		
Springfield	71,600			28	.39	
Steubenville		2		0		
Warren		1		0		
Zanesville		16		2		8.0
Oklahoma:						
Sapulpa		31		0		
Oregon:						
Salem				9		
Pennsylvania:						
Altoona	67,800			4	.06	
Bethlehem	66,000			4	.06	
Bradford				2		
Butler				2		
Canonsburg				1		
Carbondale				1		
Carnegie		4		0		
Chambersburg				5		
Clairton				4		
Columbia		2				
Connellsville				3		
Dickson				1		
Donora				4		
Easton	37,900			2	.05	
Ellwood City				3		
Farrell				5		
Greensburg		10				

* State census, 1925.

* Includes 3 nonresidents.

INFLUENZA—Continued

City	Estimated population, July 1, 1927	Cases reported, 1927	Cases per 1,000 inhabitants	Deaths registered, 1927	Deaths per 1,000 inhabitants	Cases reported for each death registered
Pennsylvania—Continued.						
Harrisburg.....	85,700			4	0.05	
Kingston.....				5		
Lancaster.....	57,700			2	.03	
Lewistown.....				1		
McKeesport.....	49,900			2	.04	
Nanticoke.....				2		
Norristown.....	35,800			3	.08	
North Braddock.....		2		2		1.0
Oil City.....				14		
Phoenixville.....				2		
Swissvale.....				2		
Warren.....				3		
Washington.....				10		
West Chester.....		2		2		1.0
Woodlawn.....				2		
York.....	49,600			9	.18	
Rhode Island:						
Cranston.....	36,600			3	.08	
Woonsocket.....	52,300			4	.08	
South Carolina:						
Charleston.....	75,000	1,254	16.72	19	.25	66.0
Columbia.....	50,000			14	.28	
Greenville.....		1		1		1.0
Spartanburg.....				8		
South Dakota:						
Sioux Falls.....				2		
Texas:						
Amarillo.....		40				
Austin.....	38,800			5	.13	
Beaumont.....	54,400			16	.29	
Cleburne.....		8		0		
Texarkana.....				10		
Tyler.....				3		
Waco.....	45,700	37	.81	10	.22	3.7
Utah:						
Provo.....				3		
Vermont:						
Bennington.....		1		1		1.0
Virginia:						
Alexandria.....		2		2		1.0
Charlottesville.....				1		
Danville.....				24		
Lynchburg.....	38,600			21	.54	
Newport News.....	51,700			3	.06	
Petersburg.....	37,100			12	.32	
Portsmouth.....	60,700			39	.64	
Roanoke.....	63,200			32	.51	
Suffolk.....		79		18		4.4
Washington:						
Aberdeen.....		16		6		2.7
Everett.....				4		
Vancouver.....				3		
West Virginia:						
Bluefield.....				1		
Charleston.....	53,400			31	.58	
Clarksburg.....				9		
Fairmont.....		7		5		1.4
Wheeling.....				8		
Wisconsin:						
Beloit.....				1		
Fond du Lac.....		1		1		1.0
Green Bay.....	35,500			4	.11	
Janesville.....				6		
Kenosha.....	54,600	4	.07	2	.04	2.0
La Crosse.....	30,400	1	.03	0		
Madison.....	48,800			1	.02	
Marinette.....				9		
Racine.....	71,300	2	.03	0		
Sheboygan.....	34,500			8	.23	
Waukesha.....		1		1		1.0
West Allis.....				1		
Wyoming:						
Casper.....				1		
Cheyenne.....		10		1		10.0

* Includes 6 nonresidents.

LETHARGIC ENCEPHALITIS

City	Estimated population, July 1, 1927	Cases reported, 1927	Cases per 1,000 inhabitants	Deaths registered, 1927	Deaths per 1,000 inhabitants	Cases reported for each death registered
Alabama:						
Mobile.....	67,700	5	0.07	3	0.04	1.7
Arizona:						
Tucson.....	-----	-----	-----	2	-----	-----
Arkansas:						
Hot Springs.....	-----	-----	-----	1	-----	-----
California:						
Alhambra.....	-----	1	-----	1	-----	1.0
Bakersfield.....	-----	1	-----	0	-----	-----
Berkeley.....	69,400	2	.03	1	.01	2.0
Eureka.....	-----	1	-----	1	-----	1.0
Glendale.....	-----	2	-----	1	-----	2.0
Pasadena.....	60,500	1	.02	1	.02	1.0
Sacramento.....	74,600	-----	-----	3	.04	-----
Santa Ana.....	-----	4	-----	0	-----	-----
Santa Barbara.....	-----	1	-----	1	-----	1.0
Stockton.....	49,800	1	.02	1	.02	1.0
Colorado:						
Fueblo.....	44,100	-----	-----	1	.02	-----
Connecticut:						
Bristol.....	-----	-----	-----	1	-----	-----
Manchester.....	-----	1	-----	1	-----	1.0
New Britain.....	71,200	3	.04	2	.03	1.5
Florida:						
Orlando.....	-----	-----	-----	2	-----	-----
Georgia:						
Athens.....	-----	-----	-----	1	-----	-----
Augusta.....	56,200	1	.02	1	-----	-----
Savannah.....	99,700	2	.02	2	.02	1.0
Illinois:						
Bloomington.....	-----	-----	-----	3	-----	-----
Champaign.....	-----	1	-----	0	-----	-----
Decatur.....	56,000	-----	-----	4	.07	-----
Elgin.....	35,000	1	.03	1	.03	1.0
Freeport.....	-----	1	-----	1	-----	-----
Oak Park.....	55,600	2	.04	1	.02	2.0
Pekin.....	-----	2	-----	0	-----	-----
Peoria.....	83,500	1	-----	1	.01	-----
Rockford.....	80,900	2	.02	2	.02	1.0
Waukegan.....	-----	2	-----	-----	-----	-----
Indiana:						
Michigan City.....	-----	-----	-----	1	-----	-----
Terre Haute.....	72,700	-----	-----	1	.01	-----
Kansas:						
Lawrence.....	-----	1	-----	0	-----	-----
Kentucky:						
Paducah.....	-----	-----	-----	1	-----	-----
Louisiana:						
Shreveport.....	78,000	-----	-----	19	1.24	-----
Maine:						
Bangor.....	-----	1	-----	0	-----	-----
Lewiston.....	36,100	-----	-----	2	.06	-----
Portland.....	77,500	-----	-----	1	.01	-----
Massachusetts:						
Adams.....	-----	2	-----	1	-----	2.0
Arlington.....	-----	1	-----	1	-----	1.0
Attleboro.....	-----	1	-----	0	-----	-----
Brockton.....	65,300	1	.02	0	-----	-----
Chelsea.....	49,000	1	.02	0	-----	-----
Chicopee.....	44,300	1	.02	0	-----	-----
Everett.....	42,900	3	.07	0	-----	-----
Malden.....	52,900	4	.08	0	-----	-----
Methuen.....	-----	1	-----	1	-----	1.0
Newburyport.....	-----	1	-----	0	-----	-----
Newton.....	56,000	-----	-----	3	.05	-----
Northampton.....	-----	10	-----	4	-----	2.5
Peabody.....	-----	1	-----	1	-----	1.0
Pittsfield.....	49,100	2	.04	1	.02	2.0
Quincy.....	65,300	2	.03	2	.03	1.0
Salem.....	42,900	2	.05	1	.02	2.0
Waltham.....	36,400	3	.08	0	-----	-----
Michigan:						
Benton Harbor.....	-----	1	-----	0	-----	-----
Ironwood.....	-----	1	-----	0	-----	-----
Jackson.....	61,700	-----	-----	2	.03	-----
Kalamazoo.....	55,500	-----	-----	1	.02	-----
Lansing.....	75,600	-----	-----	1	.01	-----
Muskegon.....	45,500	1	.02	1	.02	1.0

¹ Includes 4 nonresidents. ² State census, 1925. ³ Includes 7 nonresidents. ⁴ Includes 2 nonresidents.

LETHARGIC ENCEPHALITIS—Continued

City	Estimated population, July 1, 1927	Cases reported, 1927	Cases per 1,000 inhabitants	Deaths registered, 1927	Deaths per 1,000 inhabitants	Cases reported for each death registered
Minnesota:						
Albert Lea.....				3		
Brainerd.....				1		
St. Cloud.....				1		
Winona.....				2		
Montana:						
Butte.....	43,300			1	0.02	
New Hampshire:						
Concord.....		1		1		1.0
Manchester.....	84,800			2	.02	
New Jersey:						
Bayonne.....	93,100	2	0.02	0		
Bloomfield.....		1		0		
Dover.....		1		1		1.0
East Orange.....	63,300	5	.08	1	.02	5.0
Irrington.....		1		1		1.0
Kearny.....		2		1		2.0
Long Branch.....		1		1		1.0
New Brunswick:						
Orange.....	36,100	1	.03	0		
Passaic.....	70,800	2	.03	2	.03	1.0
Plainfield.....		1		1		1.0
Rahway.....		1		1		1.0
Summit.....		2		2		1.0
New York:						
Elmira.....	49,500	2	.04	0		
Jamestown.....	45,100	1	.02	0		
Middletown.....		2		1		2.0
Mount Vernon.....	53,300	2	.04	1	.02	2.0
Niagara Falls.....	66,600	1	.02	1	.02	1.0
Ossining.....		1		1		1.0
Schenectady.....	93,200	3	.03	2	.02	1.5
Watertown.....	33,400	1	.03	0		
White Plains.....		3		1		3.0
North Carolina:						
Durham.....	45,700			1	.02	
Greensboro.....	50,300	2	.04	2	.04	1.0
Raleigh.....				1		
Winston-Salem.....	77,100	5	.06	5	.06	1.0
Ohio:						
Alliance.....		1		1		1.0
Cambridge.....		1		1		1.0
Chillicothe.....				2		
Cuyahoga Falls.....		1		1		1.0
Hamilton.....	43,800	4	.09	4	.09	1.0
Middletown.....		2		1		2.0
Salem.....				3		
Steuenville.....				4		
Zanesville.....		2		0		
Pennsylvania:						
Altoona.....	67,800			1	.01	
Easton.....	37,900	2	.05	0		
Harrisburg.....	85,700	1	.01	0		
Hazleton.....	37,500	3	.08	3	.08	1.0
McKeesport.....	49,900	1	.02	0		
York.....	49,600	1	.02	1	.02	1.0
Rhode Island:						
Newport.....				2		
South Carolina:						
Charleston.....	75,000			5	.07	
South Dakota:						
Sioux Falls.....				2		
Texas:						
Texarkana.....				1		
Virginia:						
Charlottesville.....				2		
Lynchburg.....	38,600			2	.05	
Suffolk.....		2		2		1.0
Washington:						
Aberdeen.....		1		1		1.0
Everett.....				3		
West Virginia:						
Wheeling.....		1		1		1.0
Wisconsin:						
La Crosse.....	30,400	1	.03	1	.03	1.0
Racine.....	71,300	1	.01	0		
Sheboygan.....	34,500	2	.06	1	.03	2.0
Stevens Point.....		3		0		
West Allis.....		1		1		1.0

* Nonresidents.

MALARIA

City	Estimated population, July 1, 1927	Cases reported, 1927	Cases per 1,000 inhabitants	Deaths registered, 1927	Deaths per 1,000 inhabitants	Cases reported for each death registered
Alabama:						
Bessemer		8		0		
Florence		7		1		7.0
Gadsden		23		0		
Mobile	67,700	36	0.53	4	0.06	9.0
Selma		33		3		11.0
Arkansas:						
Fort Smith				4		
Helena		102				
Hot Springs		5		5		
Little Rock	77,500	36	.46	5	.06	7.2
California:						
Berkeley	69,400	2	.03	0		
Glendale		1		0		
Modesto		1		0		
Sacramento	74,600	1	.01	0		
Santa Ana		2		0		
Stockton	49,800	1	.02	1	.02	1.0
Connecticut:						
New London		2		0		
Georgia:						
Augusta	56,200	59	1.05	7	.12	8.4
Brunswick				1		
Macon	60,100			3	.05	
Savannah	99,700	18	.18	3	.03	6.0
Illinois:						
Alton				2		
Decatur	56,000	1	.02	1	.02	1.0
East St. Louis	73,100	4	.05	1	.01	4.0
Elgin	35,000	1	.03	0		
Murphysboro				1		
Oak Park	55,600	1	.02	0		
Indiana:						
Kokomo	39,100			1	.03	
Kansas:						
Coffeyville		10		1		10.0
Leavenworth		5				
Topeka	61,900	1	.02	0		
Kentucky:						
Covington	58,700	1	.02	1	.02	1.0
Paducah				7		
Louisiana:						
Lake Charles		2		1		2.0
Monroe		4				
Shreveport	78,000	10	.13	17	1.09	1.4
Maryland:						
Frederick		1		0		
Massachusetts:						
Brockton	65,300	2	.03	0		
Malden	52,900	1	.02	0		
Natick		4		0		
Northbridge		3		0		
Salem	42,900	1	.02	0		
Mississippi:						
Jackson		1,139		5		227.8
Missouri:						
Independence		1		0		
Montana:						
Great Falls		1		0		
New Jersey:						
Carteret		1		0		
East Orange	63,300	1	.02	0		
Hackensack		1		0		
Harrison		1				
New York:						
Middletown		1		0		
Niagara Falls	66,600	1	.02	0		
Olean		1		0		
Poughkeepsie	35,900	2	.06	0		
Saratoga Springs		2		0		
North Carolina:						
Greensboro	50,300	1	.02	0		
New Bern				1		
Raleigh				1		
Winston-Salem	77,100	2	.03	1	.01	2.0
Ohio:						
Warren		1		0		

¹ Includes 2 nonresidents.² State census, 1925.

MALARIA—Continued

City	Estimated population, July 1, 1927	Cases reported, 1927	Cases per 1,000 inhabitants	Deaths registered, 1927	Deaths per 1,000 inhabitants	Cases reported for each death registered
Oklahoma:						
Sapulpa.....		20		0		
Pennsylvania:						
Connellsville.....		1		0		
Homestead.....		1				
Kingston.....				1		
South Carolina:						
Charleston.....	75,000	593	7.91	2	0.03	296.5
Columbia.....	50,000			1	.02	
Texas:						
Cleburne.....		20		0		
Texarkana.....				3		
Waco.....	45,700	6	.13	1	.02	6.0
Virginia:						
Petersburg.....	37,100	1	.03	0		
Portsmouth.....	60,700			1	.02	
Suffolk.....		8		0		
Washington:						
Everett.....				1		
Wisconsin:						
Racine.....	71,300	3	.04	0		

MEASLES

City	Estimated population, July 1, 1927	Cases reported, 1927	Cases per 1,000 inhabitants	Deaths registered, 1927	Deaths per 1,000 inhabitants	Fatalities per 100 cases
Alabama:						
Bessemer.....		55		2		3.6
Florence.....		243		1		.4
Gadsden.....		132		0		
Mobile.....	67,700	359	5.30	3	0.04	.8
Selma.....		17		0		
Tuscaloosa.....		1		0		
Arizona:						
Tucson.....		57		0		
Arkansas:						
Fort Smith.....		829		2		.2
Helena.....		2				
Hot Springs.....		25		0		
Little Rock.....	77,500	302	3.90	0		
California:						
Alhambra.....		434		0		
Bakersfield.....		313		0		
Berkeley.....	69,400	2,026	29.19	3	.04	.1
Chico.....		34		0		
Eureka.....		199		0		
Fresno.....	62,200	364	5.85	0		
Glendale.....		1,698		2		.1
Modesto.....		66		0		
Pasadena.....	60,500	1,617	26.73	1	.02	.1
Pomona.....				4		
Richmond.....		37		0		
Riverside.....		621		1		.2
Sacramento.....	74,600	1,010	13.54	12	.16	1.2
San Jose.....	44,800	160	3.57	0		
Santa Ana.....		493		2		.4
Santa Barbara.....		639		0		
Stockton.....	49,800	576	11.57	1	.02	.2
Vallejo.....		83		1		1.2
Colorado:						
Boulder.....		29		0		
Colorado Springs.....		1,279		0		
Greeley.....		210		0		
Pueblo.....	44,100	792	17.96	1	.02	.1
Trinidad.....		79		0		
Connecticut:						
Bristol.....		958		3		.3
Fairfield.....		7				
Greenwich.....		172		0		
Manchester.....		5		0		
New Britain.....	71,200	21	.29	1	.01	4.8
New London.....		4		0		

MEASLES—Continued

City	Estimated population, July 1, 1927	Cases reported, 1927	Cases per 1,000 inhab- itants	Deaths regis- tered, 1927	Deaths per 1,000 inhab- itants	Fatalities per 100 cases
Connecticut—Continued.						
Norwich		4				
Shelton		1				
Stamford Town		47		0		
Stratford		7		0		
Florida:						
Orlando		2		1		50.0
West Palm Beach		2		0		
Georgia:						
Athens		3		0		
Augusta	56,200	140	2.49	0		
Brunswick		8		0		
Macon	60,100	187	3.11	0		
Savannah	99,700	317	3.18	1	0.01	.3
Waycross		16		0		
Idaho:						
Boise		289		0		
Pocatello		229		0		
Illinois:						
Alton		512		2		.4
Aurora	46,500	68	1.46	1	.02	1.5
Berwyn		388		0		
Bloomington		390		0		
Blue Island		148		0		
Champaign		112		0		
Chicago Heights		11		0		
Cicero	68,500	414	6.04	0		
Danville	38,200	80	2.09	0		
Decatur	56,000	296	5.29	3	.05	1.0
East Moline		238		0		
East St. Louis	73,100	27	.37	1	.01	3.7
Elgin	35,000	53	1.51	0		
Evanston	46,400	1,483	31.96	1	.02	.1
Forest Park				1		
Freeport		28				
Galesburg		82		0		
Jacksonville		266		0		
Joliet	41,500	9	.22	1	.02	11.1
Kewanee		127				
La Salle		29		0		
Marion		2		0		
Maywood		385		0		
Moline	35,100	1,018	29.00	2	.06	.2
Oak Park	55,600	1,124	20.22	1	.02	.1
Pekin		154		0		
Peoria	83,500	558	6.68	3	.04	.5
Quincy	39,500	191	4.84	0		
Rockford	80,900	45	.56	1	.01	2.2
Rock Island	41,900	683	16.30	0		
Springfield	66,400	1,620	22.89	10	.15	.7
Urbana		30		1		3.3
Waukegan		143				
Indiana:						
Anderson		11		0		
Connersville		3		0		
Crawfordsville		7		0		
East Chicago	49,100	103	2.10			
Elkhart		132		0		
Elwood		5		0		
Evansville	96,600	87	.90	1	.01	1.1
Gary	85,200	44	.52	2	.02	4.5
Huntington		4				
Kokomo	39,100	4	.10	0		
La Fayette		116		0		
Logansport		88		0		
Michigan City		29		1		3.4
Mishawaka		16		2		12.5
Muncie	45,800	35	.76	0		
New Albany		2		0		
New Castle		21		0		
Peru		28		0		
Richmond		13		0		
South Bend	84,200	414	4.92	0		
Terre Haute	72,700	389	5.35	0		
Vincennes		4		2		50.0
Whiting		41				
Iowa:						
Boone		269		0		
Burlington		217		0		
Cedar Rapids	54,100	110	2.03	0		
Clinton		128		0		

MEASLES—Continued

City	Estimated population, July 1, 1927	Cases reported, 1927	Cases per 1,000 inhab- itants	Deaths regis- tered, 1927	Deaths per 1,000 inhab- itants	Fatalities per 100 cases
Iowa—Continued.						
Davenport.....	152,500	167	3.18	—	—	—
Dubuque.....	41,900	1,133	27.04	—	—	—
Iowa City.....	—	172	—	—	—	—
Muscatine.....	—	502	—	3	—	0.6
Ottumwa.....	—	45	—	0	—	—
Waterloo.....	37,000	1,303	35.22	—	—	—
Kansas:						
Arkansas City.....	—	151	—	0	—	—
Coffeyville.....	—	263	—	1	—	.4
Eldorado.....	—	247	—	0	—	—
Emporia.....	—	384	—	0	—	—
Fort Scott.....	—	195	—	0	—	—
Hutchinson.....	—	619	—	3	—	.5
Lawrence.....	—	269	—	0	—	—
Leavenworth.....	—	13	—	—	—	—
Parsons.....	—	208	—	0	—	—
Salina.....	—	649	—	—	—	—
Topeka.....	61,900	2,199	35.53	3	0.05	.1
Kentucky:						
Covington.....	58,700	2	.03	0	—	—
Lexington.....	48,100	121	2.52	4	.08	3.3
Paducah.....	—	44	—	0	—	—
Louisiana:						
Baton Rouge.....	—	18	—	5	—	27.8
Lake Charles.....	—	42	—	0	—	—
Monroe.....	—	1	—	—	—	—
Shreveport.....	78,000	360	4.62	1	.01	.3
Maine:						
Auburn.....	—	297	—	0	—	—
Bangor.....	—	464	—	2	—	.4
Bath.....	—	16	—	0	—	—
Biddeford.....	—	11	—	0	—	—
Lewiston.....	36,100	314	8.70	0	—	—
Portland.....	77,500	89	1.15	1	.01	1.1
South Portland.....	—	40	—	—	—	—
Waterville.....	—	211	—	1	—	.5
Maryland:						
Cumberland.....	—	26	—	0	—	—
Massachusetts:						
Adams.....	—	40	—	0	—	—
Amesbury.....	—	12	—	0	—	—
Arlington.....	—	26	—	0	—	—
Athol.....	—	4	—	0	—	—
Attleboro.....	—	8	—	0	—	—
Beverly.....	—	5	—	1	—	20.0
Braintree.....	—	618	—	0	—	—
Brockton.....	165,300	21	.32	0	—	—
Brookline.....	44,800	190	4.44	0	—	—
Chelsea.....	49,000	145	2.96	0	—	—
Chicopee.....	44,300	6	.14	0	—	—
Clinton.....	—	4	—	0	—	—
Everett.....	42,900	74	1.72	0	—	—
Framingham.....	—	589	—	1	—	.2
Gardner.....	—	1	—	0	—	—
Gloucester.....	—	5	—	0	—	—
Greenfield.....	—	700	—	1	—	.1
Haverhill.....	149,200	341	6.93	2	.04	.6
Lawrence.....	193,500	731	7.82	5	.05	.7
Leominster.....	—	35	—	0	—	—
Malden.....	52,900	28	.53	0	—	—
Marlboro.....	—	2	—	0	—	—
Medford.....	51,300	273	5.32	1	.02	.4
Melrose.....	—	162	—	1	—	.6
Methuen.....	—	194	—	2	—	1.0
Milford.....	—	1	—	0	—	—
Milton.....	—	88	—	—	—	—
Natick.....	—	118	—	0	—	—
Newburyport.....	—	139	—	0	—	—
Newton.....	56,000	99	1.77	1	.02	1.0
North Adams.....	—	7	—	0	—	—
Northampton.....	—	* 183	—	0	—	—
Northbridge.....	—	27	—	0	—	—
Norwood.....	—	4	—	—	—	—
Palmer.....	—	1	—	—	—	—
Peabody.....	—	10	—	0	—	—
Pittsfield.....	49,100	214	4.36	3	.06	1.4
Plymouth.....	—	3	—	—	—	—
Quincy.....	65,300	400	6.26	1	.02	.2

* State census, 1925.

* Includes 1 nonresident.

MEASLES—Continued

City	Estimated population, July 1, 1927	Cases reported, 1927	Cases per 1,000 inhab- itants	Deaths regis- tered, 1927	Deaths per 1,000 inhab- itants	Fatalities per 100 cases
Massachusetts—Continued.						
Revere.....	35,200	299	8.49	0	—	—
Salem.....	42,900	13	.30	0	—	—
Saugus.....	—	26	—	0	—	—
Southbridge.....	—	4	—	0	—	—
Taunton.....	40,200	31	.16	0	—	—
Wakefield.....	—	62	—	0	—	—
Waltham.....	36,400	22	1.76	0	—	—
Watertown.....	—	28	—	0	—	—
Westfield.....	—	79	—	0	—	—
Weymouth.....	—	18	—	0	—	—
Winchester.....	—	17	—	0	—	—
Winthrop.....	—	8	—	0	—	—
Woburn.....	—	4	—	0	—	—
Michigan:						
Adrian.....	—	21	—	1	—	4.8
Ann Arbor.....	—	22	.45	0	—	—
Bay City.....	49,400	193	—	1	—	.5
Benton Harbor.....	—	1	—	0	—	—
Escanaba.....	—	3	.03	0	—	—
Hamtramck.....	93,800	31	.38	0	—	—
Highland Park.....	81,700	2	—	—	—	—
Holland.....	—	361	—	2	—	.6
Ironwood.....	—	66	—	0	—	—
Ishpeming.....	—	23	.37	0	—	—
Jackson.....	61,700	1,130	20.36	2	0.04	.2
Kalamazoo.....	55,500	212	2.80	1	.01	.5
Lansing.....	75,600	431	—	1	—	.2
Marquette.....	—	20	—	0	—	—
Mount Clemens.....	—	5	.11	0	—	—
Muskegon.....	45,500	97	1.80	0	—	—
Pontiac.....	54,000	825	—	0	—	—
Port Huron.....	—	11	.15	1	.01	9.1
Saginaw.....	74,400	350	—	1	—	.3
Sault Ste. Marie.....	—	2	—	0	—	—
Wyandotte.....	—	96	—	0	—	—
Minnesota:						
Austin.....	—	12	—	0	—	—
Faribault.....	—	16	—	0	—	—
Hibbing.....	—	1	—	0	—	—
Mankato.....	—	45	—	0	—	—
St. Cloud.....	—	751	—	3	—	.4
Winona.....	—	8	—	0	—	—
Mississippi:						
Jackson.....	—	8	—	0	—	—
Missouri:						
Cape Girardeau.....	—	150	—	4	—	2.7
Hannibal.....	—	31	—	1	—	3.2
Independence.....	—	212	—	0	—	—
Joplin.....	—	34	—	0	—	—
Moberly.....	—	421	5.36	0	—	—
St. Joseph.....	78,500	326	6.37	—	—	—
Springfield.....	51,200	5	—	0	—	—
Montana:						
Anaconda.....	—	143	—	0	—	—
Billings.....	—	370	8.55	0	—	—
Butte.....	43,300	257	—	1	—	.4
Great Falls.....	—	9	—	0	—	—
Helena.....	—	310	—	0	—	—
Nebraska:						
Grand Island.....	—	1,651	23.62	3	.04	.2
Lincoln.....	69,900	91	—	1	—	1.1
North Platte.....	—	10	—	0	—	—
Nevada:						
Reno.....	—	6	—	0	—	—
New Hampshire:						
Berlin.....	—	391	—	0	—	—
Claremont.....	—	16	—	0	—	—
Dover.....	—	2	—	0	—	—
Keene.....	—	85	—	1	.01	2.1
Laconia.....	—	48	.67	0	—	—
Manchester.....	84,800	8	—	0	—	—
Nashua.....	—	2	—	0	—	—
New Jersey:						
Asbury Park.....	—	28	.52	1	.02	3.6
Atlantic City.....	54,200	10	.11	0	—	—
Bayonne.....	93,100	21	—	1	—	4.8
Belleville.....	—	26	—	0	—	—
Bloomfield.....	—	4	—	—	—	—
Bridgeton.....	—	25	—	0	—	—
Cartaret.....	—	—	—	—	—	—

MEASLES—Continued

City	Estimated population, July 1, 1927	Cases reported, 1927	Cases per 1,000 inhabitants	Deaths registered, 1927	Deaths per 1,000 inhabitants	Fatalities per 100 cases
New Jersey—Continued.						
Clifton		8		0		
Collingswood		47				
Dover		179		0		
East Orange	63,300	166	2.62	0		
Englewood		12		0		
Garfield		6		0		
Hackensack		6		0		
Harrison		12				
Hoboken		8		0		
Irvington		42		0		
Kearny		11		0		
Lodi		6		0		
Long Branch		3		0		
Millville		2		0		
Montclair		23		0		
Morristown		24		0		
New Brunswick	39,900	63	1.58	0		
Nutley		5		0		
Orange	36,100	13	.36	0		
Passaic	70,800	39	.55	0		
Perth Amboy	49,100	161	3.28	1	0.02	0.6
Plainfield		10		0		
Rahway		5		0		
Ridgefield Park		15		0		
Rutherford		6		0		
Summit		9		0		
West New York		10		0		
West Orange		8		0		
New Mexico:						
Albuquerque		432		0		
New York:						
Amsterdam	35,900	23	.64	0		
Auburn	35,700	611	17.11	0		
Binghamton	73,900	14	.19	0		
Cohoes		259		0		
Corning		141		0		
Cortland		21		0		
Dunkirk		305		1		.3
Elmira	49,500	31	.63	0		
Endicott		15		0		
Freeport		1		0		
Geneva		70		0		
Gloversville		8		0		
Hornell		34		0		
Ithaca		5		0		
Jamestown	45,100	516	11.44	2	.04	.4
Johnstown		72		0		
Kingston		14		0		
Lackawanna		4		0		
Little Falls		263		0		
Lockport		84		0		
Mount Vernon	53,300	2	.04	0		
New Rochelle	47,300	30	.63	0		
Newburgh	30,400	7	.23	0		
Niagara Falls	66,600	802	12.04	10	.15	1.2
North Tonawanda		52				
Olean		392		0		
Ossining		4		0		
Pekskill		2		0		
Poughkeepsie	35,900	5	.14	0		
Rome		641		2		.3
Saratoga Springs		563		1		.2
Schenectady	93,200	663	7.11	5	.05	.8
Troy	72,300	575	7.95	1	.01	.2
Watertown	33,400	987	29.55	0		
Watervliet		181		0		
White Plains		15		0		
North Carolina:						
Asheville		452		0		
Durham	45,700	3,501	76.61	7	.15	.2
Gastonia		96		1		1.0
Greensboro	50,300	341	6.78	0		
New Bern		52		0		
Raleigh		902		0		
Rocky Mount		278		0		
Wilmington	38,400	1,304	33.96	1	.03	.1
Wilson		49		0		
Winston-Salem	77,100	1,092	25.84	0		

1 State census, 1925.

MEASLES—Continued

City	Estimated population, July 1, 1927	Cases reported, 1927	Cases per 1,000 inhabitants	Deaths registered, 1927	Deaths per 1,000 inhabitants	Fatalities per 100 cases
Ohio:						
Alliance.....		5		0		
Ashland.....		2		0		
Ashtabula.....		5		0		
Barberton.....		4		0		
Bellefontaine.....		15		0		
Bucyrus.....		12		0		
Cambridge.....		5		0		
Campbell.....		10		0		
Chillicothe.....		7		0		
Cleveland Heights.....		18		0		
Coshocton.....		3		0		
Cuyahoga Falls.....		36		0		
East Cleveland.....		34		0		
East Liverpool.....		8		0		
Elyria.....		6		0		
Findlay.....		266		0		
Hamilton.....	43,800	7	0.16	0		
Kenmore.....		30		0		
Lakewood.....	62,200	12	.19	0		
Lancaster.....		4		0		
Lima.....	48,700	323	6.63	0		
Lorain.....	44,000	10	.23	0		
Mansfield.....		19		0		
Marion.....		1		0		
Martins Ferry.....		10		0		
Middletown.....		5		0		
Newark.....		835		0		
New Philadelphia.....		3		0		
Niles.....		34		0		
Norwood.....		45		0		
Piqua.....		36		0		
Salem.....		36		0		
Sandusky.....		16		0		
Springfield.....	71,600	126	1.76	1	0.01	0.8
Steubenville.....		73		1		1.4
Tiffin.....		38		0		
Warren.....		232		0		
Zanesville.....		5		0		
Oklahoma:						
Sapulpa.....		2		0		
Oregon:						
Salem.....		30		0		
Pennsylvania:						
Altoona.....	67,800	193	2.85	0		
Beaver Falls.....		22		0		
Berwick.....		1		0		
Bethlehem.....	66,000	18	.27	0		
Braddock.....		27		0		
Bradford.....		776		0		
Butler.....		268		1		.4
Canonsburg.....		8		0		
Carbondale.....		84		0		
Carlisle.....		40		0		
Carnegie.....		156		0		
Chambersburg.....		159		0		
Charleroi.....		135		0		
Clairton.....		183		0		
Coatesville.....		12		0		
Columbia.....		76				
Connellsville.....		51		0		
Dickson.....		2		0		
Donora.....		91		5		5.5
Duquesne.....		164		0		
Easton.....	37,900	95	2.51	0		
Ellwood City.....		2		0		
Farrell.....		3		0		
Greensburg.....		107				
Harrisburg.....	85,700	46	.54	0		
Hazleton.....	37,500	9	.24	0		
Homestead.....		35				
Jeannette.....		69		1		1.4
Kingston.....		23		0		
Lancaster.....	57,700	164	2.84	0		
Latrobe.....		22		0		
Lebanon.....		1				
Lewistown.....		121		1		.8
McKeesport.....	49,900	64	1.28	0		
Mahanoy City.....		12		0		

MEASLES—Continued

City	Estimated population, July 1, 1927	Cases reported, 1927	Cases per 1,000 inhabitants	Deaths registered, 1927	Deaths per 1,000 inhabitants	Fatalities per 100 cases
Pennsylvania—Continued.						
Monessen.....		423		11		2.6
Nanticoke.....		2		0		
Norristown.....	35,800	6	0.17	0		
North Braddock.....		96		0		
Oil City.....		12		0		
Phoenixville.....		6		0		
Plymouth.....		10				
Sharon.....		108		2		1.9
Steelton.....		2				
Swissvale.....		199		0		
Warren.....		18		0		
Washington.....		86		0		
West Chester.....		14		1		7.1
Williamsport.....	43,600	519	11.90			
Windber.....		31		0		
Woodlawn.....		77		0		
York.....	49,600	51	1.03	0		
Rhode Island:						
Cranston.....	36,600	22	.60	0		
Woonsocket.....	52,300	6	.11	1	0.02	16.7
South Carolina:						
Charleston.....	75,000	249	3.32	0		
Columbia.....	50,000	547	10.94	0		
Greenville.....		232		2		.9
Spartanburg.....		222		4		1.8
Sumter.....		17		0		
South Dakota:						
Aberdeen.....		867				
Sioux Falls.....		575		1		.2
Watertown.....		212				
Texas:						
Amarillo.....		50		0		
Austin.....	38,800			1	.03	
Cleburne.....		125		0		
Orange.....		59		0		
San Angelo.....		8				
Texarkana.....		85		0		
Tyler.....		1		0		
Waco.....	45,700	49	1.07	0		
Utah:						
Ogden.....	38,300	1,690	44.36			
Provo.....		671		0		
Vermont:						
Barre.....		167		1		.6
Bennington.....		42		0		
Virginia:						
Alexandria.....		20		0		
Charlottesville.....		15		0		
Danville.....		86		1		1.2
Lynchburg.....	38,600	441	11.42	1	.03	.2
Newport News.....	51,700	175	3.38	0		
Petersburg.....	37,100	172	4.64	0		
Portsmouth.....	60,700	925	15.24	2	.03	.2
Roanoke.....	63,200	105	1.66	0		
Suffolk.....		147		0		
Washington:						
Aberdeen.....		20		1		5.0
Yakima.....		1,074		0		
West Virginia:						
Bluefield.....		29		1		3.4
Charleston.....	53,400	82	1.54	1	.02	1.2
Clarksburg.....		995		1		.1
Fairmont.....		109		1		.9
Huntington.....	66,900	3	.04			
Morgantown.....				1		
Wheeling.....		267		0		
Wisconsin:						
Beloit.....		32		0		
Eau Claire.....		55		0		
Fond du Lac.....		384		0		
Green Bay.....	35,500	121	3.41	0		
Janesville.....		39		1		2.6
Kenosha.....	54,600	1,408	25.79	2	.04	.1
La Crosse.....	30,400	1,401	46.09	3	.10	.2
Madison.....	48,800	193	3.95	3	.06	1.6
Manitowoc.....		41		0		
Oshkosh.....	33,200	219	6.60	0		
Racine.....	71,300	211	2.96	1	.01	.5

* Nonresident.

MEASLES—Continued

City	Estimated population, July 1, 1927	Cases reported, 1927	Cases per 1,000 inhabitants	Deaths registered, 1927	Deaths per 1,000 inhabitants	Fatalities per 100 cases
Wisconsin—Continued.						
Sheboygan.....	34,500	135	3.91	1	0.03	0.7
Superior.....		85		0		
Waukesha.....		25		1		4.0
Wausau.....		374		0		
West Allis.....		60		1		1.7
Wyoming:						
Casper.....		554		1		.2
Cheyenne.....		40		0		

MENINGOCOCCUS MENINGITIS

City	Estimated population, July 1, 1927	Estimated expectancy		1927				
		Number of years	Cases	Cases re- ported	Cases per 1,000 inhab- itants	Deaths regis- tered	Deaths per 1,000 inhab- itants	Fatal- ities per 100 cases
Alabama:								
Bessemer.....		2	0	1		0		
Mobile.....	67,700	6	1	2	0.03	2	0.03	100.0
Arizona:								
Tucson.....				3		1		33.3
Arkansas:								
Fort Smith.....		4	0			2		
Hot Springs.....		2	0	1		1		100.0
Little Rock.....	77,500	6	1	2	.03	1	.01	50.0
California:								
Berkeley.....	69,400	7	1	1	.01	0		
Chico.....		3	0			1		
Glendale.....				2		1		50.0
Modesto.....		3	4	1		0		
Pasadena.....	60,500	6	2	2	.03	0		
Richmond.....		7	0	1		0		
Sacramento.....	74,600	7	2	31	.42	19	.25	61.3
San Jose.....	44,800	5	1	1	.02	0		
Santa Ana.....				2		1		50.0
Santa Barbara.....				6		5		83.3
Stockton.....	49,800	4	1	2	.04	1	.02	50.0
Vallejo.....		2	0	1		1		100.0
Colorado:								
Colorado Springs.....		5	0	1		1		100.0
Pueblo.....	44,100	5	1	14	.32	2	.05	14.3
Trinidad.....						4		
Connecticut:								
Bristol.....		4	1	2		0		
Derby.....		2	1			2		
New Britain.....	71,200	6	6	3	.04	2	.03	66.7
New London.....		4	2	1		1		100.0
Norwich.....		6	1	1		1		100.0
Stamford Town.....						6		
Georgia:								
Augusta.....	56,200	5	1			2	.04	
Macon.....	60,100	7	0	2	.03	2	.03	100.0
Savannah.....	99,700	7	1	3	.03	0		
Waycross.....		1	1	1		1		100.0
Idaho:								
Boise.....		7	0	1		1		100.0
Pocatello.....		4	0	1		1		100.0
Illinois:								
Aurora.....	46,500	6	1	2	.04	2	.04	100.0
Berwyn.....		5	1	1		0		
Bloomington.....		5	0			2		
Chicago Heights.....		4	1	1		0		
Cicero.....	68,500	6	0	1	.01	1	.01	100.0
Decatur.....	56,000	4	2	2	.04	0		
East St. Louis.....	73,100	6	2			7	.10	
Elgin.....	35,000	6	0	8	.23	4	.11	50.0
Evanston.....	46,400	7	0	3	.06	3	.06	100.0
Galesburg.....		5	1	2		2		100.0
Jacksonville.....		6	0	5		2		40.0
La Salle.....		5	0	2		1		50.0

MENINGOCOCCUS MENINGITIS—Continued

City	Estimated population, July 1, 1927	Estimated expectancy		1927				
		Number of years	Cases	Cases re- ported	Cases per 1,000 inhab- itants	Deaths regis- tered	Deaths per 1,000 inhab- itants	Fatal- ities per 100 cases
Illinois—Continued.								
Marion.....				1		1		100.0
Moline.....	35,100	5	1			1	0.03	
Mount Vernon.....						2		
Murphysboro.....						2		
Pekin.....		7	0			1		
Peoria.....	83,500			2	0.02	1	.01	50.0
Rockford.....	80,900	6	2			1	.01	
Springfield.....	66,400	7	2	2	.03	2	.03	100.0
Waukegan.....		3	0	6				
Indiana:								
Mishawaka.....		6	1			3		
New Castle.....						2		
Iowa:								
Cedar Rapids.....	54,100	7	0			6	.11	
Muscatine.....		7	0	3		3		100.0
Waterloo.....	37,000	5	1	2	.05	1	.03	50.0
Kansas:								
Arkansas City.....		2	1			2		
Eldorado.....				1		1		
Fort Scott.....		7	0	1		1		100.0
Lawrence.....		6	0			2		
Leavenworth.....		7	0	1				
Parsons.....		5	1	2		0		
Salina.....		1	3	1		1		100.0
Topeka.....	61,900	5	2	1	.02	1	.02	100.0
Kentucky:								
Lexington.....	48,100	4	0	5	.10	5	.10	100.0
Paducah.....		5	1	1		0		
Louisiana:								
Baton Rouge.....		4	0	1		0		
Monroe.....		1	4	2				
Shreveport.....	78,000	3	1	1	.01	0		
Maine:								
Bangor.....		4	4	3		1		33.3
Bath.....		5	1			2		
Lewiston.....	36,100					10	.28	
Portland.....	77,500	6	1			2	.03	
Maryland:								
Cumberland.....		6	1	1		1		100.0
Frederick.....		1	0	1		1		100.0
Massachusetts:								
Gloucester.....						2		
Greenfield.....		4	1			1		
Lawrence.....	93,500	6	4			3	.03	
Malden.....	52,900	7	2	1	.02	0		
Melrose.....		7	1	2		0		
Milford.....		5	1			3		
Newburyport.....		6	0			2		
Norwood.....		5	0	2				
Palmer.....		3	0	1				
Peabody.....		6	2	1		1		100.0
Pittsfield.....	49,100	7	0	1	.02	1	.02	100.0
Winthrop.....		7	0	1		0		
Michigan:								
Ann Arbor.....		7	0			4		
Hamtramck.....	93,800			1	.01	0		
Highland Park.....	81,700	6	8	11	.13	5	.06	45.5
Ironwood.....		5	2	6		2		33.3
Mount Clemens.....		2	0	1		1		100.0
Muskegon.....	45,500	5	2	1	.02	0		
Pontiac.....	54,000	7	0	1	.02	1	.02	100.0
Saginaw.....	74,400					15	.20	
Wyandotte.....		1	5	1		0		
Minnesota:								
Brainerd.....						2		
Hibbing.....		7	0	3		1		33.3
St. Cloud.....		4	0	1		1		100.0
Virginia.....		2	1	5		4		80.0
Missouri:								
Cape Girardeau.....						2		
Hannibal.....		2	0	1		0		
Independence.....						1		
Moberly.....		4	2	4		2		50.0
Springfield.....	51,200	3	0	4	.08			

¹ State census, 1925.² Nonresidents.

MENINGOCOCCUS MENINGITIS—Continued

City	Estimated population, July 1, 1927	Estimated expectancy		1927					
		Number of years	Cases	Cases reported	Cases per 1,000 inhabitants	Deaths registered	Deaths per 1,000 inhabitants	Fatalities per 100 cases	
Montana:									
Anaconda.....		5	0	15		5		33.3	
Billings.....		1	0			6			
Butte.....	43,300			20	0.46	11	0.25	55.0	
Great Falls.....		4	1	4		2		50.0	
Helena.....				7		3		42.9	
Nebraska:									
North Platte.....		4	1	1		1		100.0	
New Hampshire:									
Berlin.....		6	0			5			
Claremont.....		3	0	2		2		100.0	
Nashua.....				3		3		100.0	
New Jersey:									
Bayonne.....	93,100	5	5	9	.10	3	.03	33.3	
Cartaret.....				2		0			
Clifton.....		6	0	4		0			
Englewood.....		5	0	1					
Garfield.....				3		2		66.7	
Kearny.....		6	0	4		0			
Montclair.....		6	4	1		1		100.0	
Nutley.....		1	0	4		2		50.0	
Orange.....	26,100	6	1	1	.03	0			
Passaic.....	70,800					3	.04		
Rahway.....		7	0	2		2		100.0	
West New York.....		7	0	1		1		100.0	
New Mexico:									
Albuquerque.....		3	2			6			
New York:									
Amsterdam.....	35,900	3	2			5	.14		
Binghamton.....	73,900	6	1	2	.03	0			
Elmira.....	49,500			2	.04	0			
Endicott.....		3	1	2		1		50.0	
Gloversville.....		7	1	1		0			
Jamestown.....	45,100	7	0	2	.04	1	.02	50.0	
Lackawanna.....		5	2	2		0			
Newburgh.....	30,400					3	.10		
Olean.....		7	0			1			
Ossining.....		3	1	1		1		100.0	
Pekskill.....		7	1			1			
Schenectady.....	93,200	7	2	1	.01	0			
Watertown.....	33,400	6	1			2	.06		
White Plains.....		7	1	1		0			
North Carolina:									
Durham.....	45,700			1	.02	1	.02	100.0	
Greensboro.....	50,300	4	0	1	.02	0			
New Bern.....						3			
Raleigh.....		5	1	2		0			
Wilmington.....	38,400	6	1			1	.03		
Winston-Salem.....	77,100	5	1	2	.03	2	.03	100.0	
Ohio:									
Alliance.....		4	2	1		0			
Ashtabula.....		6	1	1		0			
Barberton.....				3		1		33.3	
Chillicothe.....		7	0			3			
Findlay.....		4	1	2		1		50.0	
Hamilton.....	43,800			2	.05	1	.02	50.0	
Kenmore.....		5	1	2		1		50.0	
Marion.....		5	1	5		3		60.0	
Middletown.....		7	0	3		1		33.3	
Sandusky.....		6	1	1		1		100.0	
Steubenville.....		6	2	4		0			
Warren.....		5	1	1		1		100.0	
Oregon:									
Salem.....				1		0			
Pennsylvania:									
Braddock.....				2		1		50.0	
Canonsburg.....		4	0			2			
Clairton.....		4	0	1		0			
Duquesne.....				3		2		66.7	
Farrell.....		5	0			1			
Hazleton.....	37,500	7	0	1	.03	1	.03	100.0	
Kingston.....		4	0			3			
Lancaster.....	57,700	6	0			9	.16		

* Nonresident.

MENINGOCOCCUS MENINGITIS—Continued

City	Estimated population, July 1, 1927	Estimated expectancy		1927				
		Number of years	Cases	Cases reported	Cases per 1,000 inhabitants	Deaths registered	Deaths per 1,000 inhabitants	Fatalities per 100 cases
Pennsylvania—Continued.								
Lebanon.....		2	0	1				
Swissvale.....						1		
West Chester.....		6	1	4		4		100.0
York.....	49,600	6	1	1	0.02	0		
Rhode Island:								
Cranston.....	36,600	5	0			4	0.11	
Woonsocket.....	52,300			1	.02	1	.02	100.0
South Carolina:								
Charleston.....	75,000			2	.03	0		
Columbia.....	50,000	6	3	1	.02	1	.02	100.0
Greenville.....		4	1	4		4		100.0
Texas:								
Amarillo.....		5	0	1		1		100.0
Beaumont.....	54,400					3	.06	
Galveston.....	49,900			3	.06	3	.06	100.0
Temple.....				1				
Texarkana.....		5	0			3		
Utah:								
Ogden.....	38,300	5	0	3	.08			
Virginia:								
Charlottesville.....		6	0	2		2		100.0
Roanoke.....	63,200	4	2			1	.02	
Washington:								
Aberdeen.....		7	1	2		2		100.0
Everett.....						1		
Yakima.....		6	0	6		6		100.0
West Virginia:								
Bluefield.....		4	2	3		3		100.0
Charleston.....	53,400	3	3			17	4.32	
Clarksburg.....		5	1	4		2		50.0
Huntington.....	66,900			1	.01			
Wisconsin:								
Beloit.....		6	0			1		
Racine.....	71,300	7	2	12	.17	6	.08	50.0
Superior.....		4	2			9		
Waukesha.....				1		0		
West Allis.....				11		5		45.5
Wyoming:								
Cheyenne.....		2	2	2		1		50.0

* Includes 7 nonresidents.

MUMPS

City	Estimated population, July 1, 1927	Average, 1922-1926		1927				
		Number of years	Cases	Cases reported	Cases per 1,000 inhabitants	Deaths registered	Deaths per 1,000 inhabitants	Cases reported for each death registered
Alabama:								
Bessemer		1	1	2		0		
Florence		2	13	1		0		
Gadsden		1	27	7		0		
Mobile	67,700	3	10	16	0.24	0		
Selma				24		0		
Tuscaloosa				211				
Arizona:						0		
Tucson		4	8	1				
Arkansas:						0		
Fort Smith		4	24	102		0		
Hot Springs		2	8	2		0		
Little Rock	77,500	5	25	7	.09			
California:						0		
Alhambra		3	50	64		0		
Bakersfield		5	13	8		0		

MUMPS—Continued

City	Estimated population, July 1, 1927	Average, 1922-1926		1927				
		Number of years	Cases	Cases re- ported	Cases per 1,000 inhab- itants	Deaths regis- tered	Deaths per 1,000 inhab- itants	Cases report- ed for each death regis- tered
California—Continued.								
Berkeley.....	69,400	5	374	244	3.52	0	—	—
Eureka.....	—	5	40	1	—	0	—	—
Fresno.....	62,200	3	46	192	3.09	0	—	—
Glendale.....	—	5	78	21	—	0	—	—
Modesto.....	—	—	—	3	—	0	—	—
Pasadena.....	66,500	5	193	83	1.37	0	—	—
Richmond.....	—	5	2	2	—	—	—	—
Riverside.....	—	4	29	33	—	0	—	—
Sacramento.....	74,600	5	87	233	3.12	0	—	—
San Jose.....	44,800	5	32	23	.51	0	—	—
Santa Ana.....	—	5	20	31	—	0	—	—
Santa Barbara.....	—	3	20	7	—	0	—	—
Stockton.....	49,800	3	42	51	1.02	0	—	—
Vallejo.....	—	2	4	30	—	0	—	—
Colorado:								
Boulder.....	—	5	60	5	—	0	—	—
Colorado Springs.....	—	5	320	10	—	0	—	—
Greeley.....	—	4	16	187	—	0	—	—
Pueblo.....	44,100	5	76	10	.23	0	—	—
Connecticut:								
Bristol.....	—	3	56	24	—	0	—	—
Fairfield.....	—	5	35	103	—	—	—	—
Greenwich.....	—	5	69	45	—	0	—	—
Manchester.....	—	4	1	31	—	0	—	—
New Britain.....	71,200	5	23	44	.62	0	—	—
New London.....	—	4	37	55	—	0	—	—
Norwich.....	—	3	11	7	—	—	—	—
Shelton.....	—	2	3	5	—	—	—	—
Stamford Town.....	—	—	—	78	—	0	—	—
Stratford.....	—	4	4	5	—	0	—	—
Georgia:								
Athens.....	—	4	17	17	—	0	—	—
Augusta.....	56,200	3	11	67	1.19	0	—	—
Brunswick.....	—	3	28	173	—	0	—	—
Savannah.....	99,700	5	44	23	.23	0	—	—
Waycross.....	—	1	88	32	—	0	—	—
Idaho:								
Boise.....	—	5	6	63	—	0	—	—
Pocatello.....	—	3	21	3	—	0	—	—
Illinois:								
Alton.....	—	5	88	34	—	0	—	—
Aurora.....	46,500	4	13	150	3.23	0	—	—
Berwyn.....	—	5	70	384	—	0	—	—
Bloomington.....	—	5	131	632	—	0	—	—
Blue Island.....	—	5	31	59	—	0	—	—
Champaign.....	—	4	60	11	—	0	—	—
Chicago Heights.....	—	—	—	41	—	0	—	—
Cicero.....	68,500	5	176	471	6.88	0	—	—
Danville.....	38,200	4	29	60	1.57	0	—	—
Decatur.....	56,000	4	54	1,042	18.61	0	—	—
East Moline.....	—	3	18	10	—	0	—	—
East St. Louis.....	73,100	4	5	21	.29	0	—	—
Elgin.....	35,000	5	250	195	5.57	0	—	—
Evanston.....	46,400	5	132	1,351	29.12	0	—	—
Freeport.....	—	4	10	144	—	—	—	—
Galesburg.....	—	4	13	31	—	0	—	—
Jacksonville.....	—	5	193	22	—	0	—	—
Joliet.....	41,500	2	7	7	.17	0	—	—
Kewanee.....	—	3	6	7	—	—	—	—
La Salle.....	—	3	1	4	—	0	—	—
Maywood.....	—	5	45	137	—	0	—	—
Moline.....	35,100	5	148	408	11.62	0	—	—
Oak Park.....	55,600	5	299	665	11.96	0	—	—
Pekin.....	—	5	32	1	—	0	—	—
Peoria.....	83,500	5	135	127	1.52	0	—	—
Quincy.....	39,500	5	78	194	4.91	0	—	—
Rockford.....	80,900	5	308	202	2.50	0	—	—
Rock Island.....	41,900	5	69	972	23.20	0	—	—
Springfield.....	66,400	4	92	72	1.08	0	—	—
Urbana.....	—	3	25	10	—	0	—	—
Waukegan.....	—	3	28	326	—	—	—	—

MUMPS—Continued

City	Estimated population, July 1, 1927	Average, 1922-1926		1927				
		Number of years	Cases	Cases reported	Cases per 1,000 inhabitants	Deaths registered	Deaths per 1,000 inhabitants	Cases reported for each death registered
Indiana:								
East Chicago	49,100	5	12	61	1.24			
La Fayette		2	2	2		0		
Muncie	45,800			116	2.53	0		
New Castle		2	5	1		0		
Peru				1		0		
Richmond		4	2	5		0		
Iowa:								
Boone		2	43	8		0		
Burlington		5	46	4		0		
Cedar Rapids	54,100	2	6	15	.28	0		
Clinton		5	3	20		0		
Davenport	52,500	3	18	36	.69			
Dubuque	41,900	5	31	67	1.60			
Iowa City		4	45	51				
Muscatine		4	3	9		0		
Ottumwa		2	0	63				
Waterloo	37,000	3	121	21	.57			
Kansas:								
Arkansas City				2		0		
Coffeyville		4	2	2		0		
Eldorado		4	3	5		0		
Emporia		4	73	5		0		
Fort Scott		3	8	1		0		
Hutchinson		4	57	4		0		
Lawrence		4	23	56		0		
Leavenworth				6				
Parsons		5	13	3		0		
Salina				160				
Topeka	61,900	4	137	25	.40	0		
Kentucky:								
Covington	58,700	4	18	21	.36	1	0.02	21.0
Lexington	48,100	3	11	38	.79			
Paducah		3	41	2		0		
Louisiana:								
Lake Charles				132		0		
Shreveport	78,000	4	16	253	3.24	0		
Maine:								
Auburn		4	54	14		0		
Bangor		4	17	2		0		
Bath		5	11	1		0		
Biddeford		3	25	1		0		
Lewiston	36,100	5	37	28	.78	0		
Portland	77,600	5	379	31	.40	0		
South Portland		2	28	5				
Waterville		5	24	5		0		
Maryland:								
Cumberland		4	4	8		0		
Frederick		1	2	9		0		
Massachusetts:								
Adams				31		0		
Amesbury		4	7	6		0		
Arlington		5	52	214		0		
Athol		2	3	1		0		
Attleboro		4	10	35		0		
Beverly		5	9	19		0		
Braintree		4	50	42		0		
Brookton	65,300	5	58	192	2.94	0		
Brookline	44,800	5	96	226	5.04	0		
Chelsea	49,000	5	28	161	3.29	0		
Chicopee	44,300	4	2	9	.20	0		
Clinton		4	29	31		0		
Danvers		5	8	71		0		
Easthampton		5	10	9		0		
Everett	42,900	5	57	144	3.36	0		
Framingham		5	106	254		0		
Gardner		3	3	3		0		
Gloucester		1	14	2		0		
Greenfield		4	101	58		0		
Haverhill	149,200	5	112	8	.16	0		
Lawrence	193,500	5	53	36	.39	0		
Leominster		5	17	3		0		

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MUMPS—Continued

City	Estimated population, July 1, 1927	Average, 1922-1926		1927				
		Num- ber of years	Cases	Cases re- ported	Cases per 1,000 inhab- itants	Deaths regis- tered	Deaths per 1,000 inhab- itants	Cases report- ed for each death regis- tered
Massachusetts—Continued.								
Malden.....	52,900	5	49	102	1.93	0		
Marlboro.....		4	5	49		0		
Medford.....	51,300	5	82	497	9.69	0		
Melrose.....		5	29	35		0		
Methuen.....		5	52	19		0		
Milford.....		4	20	18		0		
Milton.....		2	11	205		0		
Natick.....		4	9	93		0		
Newburyport.....		5	46	4		0		
Newton.....	56,000	5	377	1,086	19.39	0		
North Adams.....		4	5	6		0		
Northampton.....		5	91	11		0		
Northbridge.....		5	12	19		0		
Norwood.....		2	29	16				
Palmer.....				4				
Peabody.....		5	18	13		0		
Pittsfield.....	49,100	5	22	42	.86	0		
Plymouth.....		5	36	3				
Quincy.....	65,300	5	96	80	1.23	0		
Revere.....	35,200	1	22	13	.37	0		
Salem.....	42,900	5	57	50	1.17	0		
Saugus.....		5	21	12		0		
Southbridge.....		3	20	3		0		
Taunton.....	40,200	5	4	5	.12	0		
Wakefield.....		5	16	113		0		
Waltham.....	36,400	5	111	119	3.27	0		
Watertown.....		5	41	180				
Westfield.....		4	23	15		0		
Weymouth.....				8		0		
Winchester.....		5	61	59				
Winthrop.....		5	69	52		0		
Woburn.....		4	7	5		0		
Michigan:								
Ann Arbor.....		5	80	75		0		
Bay City.....	49,400	5	3	13	.26	0		
Benton Harbor.....		5	4	6		0		
Escanaba.....				3		0		
Hamtramck.....	93,800	5	9	13	.14	0		
Highland Park.....	81,700	5	152	383	4.69	0		
Holland.....		4	4	7				
Ironwood.....		5	7	11		0		
Jackson.....	61,700	5	258	451	7.31	0		
Kalamazoo.....	55,500	5	196	320	5.77	0		
Lansing.....	75,600	5	91	44	.58	0		
Marquette.....		4	106	8		0		
Mount Clemens.....				10		0		
Pontiac.....	54,000	5	194	206	3.81	0		
Port Huron.....		5	131	64		0		
Saginaw.....	74,400	5	58	40	.54	0		
Sault Ste. Marie.....				1		0		
Mississippi:								
Jackson.....		4	148	120		0		
Missouri:								
Independence.....		3	23	11		0		
Joplin.....		4	4	1				
Moberly.....				68		0		
St. Joseph.....	78,500	5	28	11	.14	0		
Springfield.....	51,200	4	7	3	.06			
Montana:								
Billings.....		1	76	2		0		
Butte.....	43,300			5	.12	0		
Great Falls.....		3	5	10		0		
Nebraska:								
Grand Island.....		5	29	12		0		
Lincoln.....	69,900	5	162	294	4.21	0		
North Platte.....		4	1	16		1		16.0
New Hampshire:								
Berlin.....				11		0		
Claremont.....		3	1	12		0		
Dover.....		5	16	1		0		
Keene.....				13		0		
Laconia.....		1	21	14		0		
Nashua.....				6		0		

MUMPS—Continued

City	Estimated population, July 1, 1927	Average, 1922-1926		1927				
		Number of years	Cases	Cases reported	Cases per 1,000 inhabitants	Deaths registered	Deaths per 1,000 inhabitants	Cases reported for each death registered
New Jersey:								
Atlantic City.....	54,200	1	98	44	0.81	0	-----	-----
Bayonne.....	93,100	3	3	4	.04	0	-----	-----
Belleville.....	-----	4	27	22	-----	0	-----	-----
Bloomfield.....	-----	4	118	92	-----	0	-----	-----
Bridgeton.....	-----	5	20	29	-----	-----	-----	-----
Cartaret.....	-----	-----	-----	5	-----	0	-----	-----
Clifton.....	-----	4	10	9	-----	0	-----	-----
Collingswood.....	-----	1	63	2	-----	-----	-----	-----
Dover.....	-----	3	103	4	-----	0	-----	-----
East Orange.....	63,300	4	184	361	5.70	0	-----	-----
Englewood.....	-----	4	18	180	-----	-----	-----	-----
Garfield.....	-----	4	6	7	-----	0	-----	-----
Hackensack.....	-----	5	57	141	-----	0	-----	-----
Harrison.....	-----	4	15	4	-----	-----	-----	-----
Hoboken.....	-----	4	11	28	-----	0	-----	-----
Irvington.....	-----	4	72	171	-----	0	-----	-----
Kearny.....	-----	4	131	24	-----	0	-----	-----
Lodi.....	-----	2	3	2	-----	0	-----	-----
Montclair.....	-----	5	93	335	-----	1	-----	335.0
Morristown.....	-----	5	25	93	-----	0	-----	-----
Nutley.....	-----	1	32	4	-----	0	-----	-----
Orange.....	36,100	5	81	132	3.66	0	-----	-----
Passaic.....	70,800	5	55	26	.37	0	-----	-----
Rahway.....	-----	5	6	10	-----	0	-----	-----
Ridgefield Park.....	-----	3	7	41	-----	0	-----	-----
Rutherford.....	-----	3	55	32	-----	0	-----	-----
Summit.....	-----	5	44	13	-----	0	-----	-----
West New York.....	-----	4	2	83	-----	0	-----	-----
West Orange.....	-----	5	42	106	-----	0	-----	-----
New Mexico:								
Albuquerque.....	-----	2	72	229	-----	0	-----	-----
New York:								
Amsterdam.....	35,900	5	49	125	3.48	0	-----	-----
Auburn.....	135,700	3	30	5	.14	0	-----	-----
Binghamton.....	73,900	5	275	549	7.43	0	-----	-----
Cohoes.....	-----	-----	-----	132	-----	0	-----	-----
Corning.....	-----	4	22	29	-----	0	-----	-----
Cortland.....	-----	4	2	10	-----	0	-----	-----
Dunkirk.....	-----	5	7	50	-----	0	-----	-----
Elmira.....	49,500	4	78	345	6.97	0	-----	-----
Endicott.....	-----	3	37	186	-----	0	-----	-----
Freeport.....	-----	2	18	30	-----	0	-----	-----
Geneva.....	-----	4	59	81	-----	0	-----	-----
Gloversville.....	-----	5	16	244	-----	0	-----	-----
Hornell.....	-----	5	74	370	-----	0	-----	-----
Ithaca.....	-----	5	96	13	-----	0	-----	-----
Jamestown.....	45,100	5	22	289	6.41	0	-----	-----
Johnstown.....	-----	3	3	54	-----	0	-----	-----
Kingston.....	-----	4	33	14	-----	0	-----	-----
Lackawanna.....	-----	4	16	20	-----	0	-----	-----
Little Falls.....	-----	5	20	15	-----	0	-----	-----
Lockport.....	-----	5	27	1	-----	0	-----	-----
Middletown.....	-----	5	3	188	-----	0	-----	-----
Mount Vernon.....	53,300	5	161	332	6.23	0	-----	-----
New Rochelle.....	47,300	5	78	90	1.90	0	-----	-----
Newburgh.....	30,400	5	21	307	10.10	0	-----	-----
Niagara Falls.....	66,600	5	83	239	3.59	0	-----	-----
North Tonawanda.....	-----	5	15	6	-----	-----	-----	-----
Olean.....	-----	5	88	3	-----	0	-----	-----
Ossining.....	-----	1	74	49	-----	0	-----	-----
Peekskill.....	-----	5	51	12	-----	0	-----	-----
Poughkeepsie.....	35,900	5	61	58	1.62	0	-----	-----
Rome.....	-----	5	16	14	-----	0	-----	-----
Saratoga Springs.....	-----	5	62	180	-----	0	-----	-----
Schenectady.....	93,200	5	155	1,082	11.61	0	-----	-----
Troy.....	72,300	5	105	315	4.36	0	-----	-----
Watertown.....	33,400	4	130	34	1.02	0	-----	-----
White Plains.....	-----	5	36	169	-----	0	-----	-----
North Carolina:								
Asheville.....	-----	-----	-----	10	-----	0	-----	-----
Greensboro.....	50,300	3	187	55	1.09	0	-----	-----

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MUMPS—Continued

City	Estimated population, July 1, 1927	Average, 1922-1926		1927				
		Num- ber of years	Cases	Cases re- ported	Cases per 1,000 inhab- itants	Deaths regis- tered	Deaths per 1,000 inhab- itants	Cases report- ed for each death regis- tered
North Carolina—Continued.								
Rocky Mount.....		3	5	6		0		
Wilmington.....	38,400	5	73	203	5.29	0		
Winston-Salem.....	77,100	5	138	774	10.04	0		
Ohio:								
Ashtabula.....		5	31	4		0		
Barberton.....		3	5	1		0		
Bellefontaine.....		1	8	10		0		
Campbell.....		3	5	7		0		
Cleveland Heights.....		5	93	142		0		
Cuyahoga Falls.....		4	10	43		0		
East Cleveland.....		5	135	50		0		
Findlay.....		5	30	69		0		
Hamilton.....	43,800	5	4	71	1.62	0		
Kenmore.....		5	42	90		0		
Lakewood.....	62,200	3	32	79	1.27	0		
Lancaster.....		3	1	2		0		
Lima.....	48,700	5	7	24	.49	0		
Mansfield.....		5	74	24		0		
Newark.....		3	89	38		0		
New Philadelphia.....		3	3	1		0		
Norwood.....		5	10	52		0		
Salem.....		4	51	5		0		
Springfield.....	71,600	5	23	6	.08	0		
Steubenville.....		5	1	1		0		
Warren.....		3	12	70		0		
Oklahoma:								
Sapulpa.....				30		0		
Oregon:								
Salem.....		1	74	30		0		
Pennsylvania:								
Altoona.....	67,800	4	72	174	2.57	0		
Beaver Falls.....		3	6	4		0		
Berwick.....		2	23	2		0		
Bethlehem.....	66,000	4	7	14	.21	3	0.50	4.7
Braddock.....		5	10	14		0		
Bradford.....		4	21	11		0		
Butler.....		4	95	3		0		
Carbondale.....				7		0		
Carnegie.....		4	17	71		0		
Chambersburg.....		5	31	5		0		
Charleroi.....		5	24	2		0		
Clairton.....		4	12	4		0		
Coatesville.....		4	19	10		0		
Columbia.....		2	2	2				
Duquesne.....		2	4	2		0		
Easton.....	37,900	4	68	30	.79	0		
Ellwood City.....		1	101	32		0		
Harrisburg.....	85,700	5	158	294	3.43	0		
Hazleton.....	37,500	5	32	22	.59	0		
Homestead.....		5	12	9				
Jeannette.....		5	7	1		0		
Kingston.....		4	42	266		0		
Lancaster.....	57,700	5	146	23	.40	0		
Lebanon.....		1	10	8				
Lewistown.....				1		0		
McKeesport.....	49,900	5	24	4	.08	0		
Mahanoy City.....				8				
Monessen.....		5	12	154		0		
Nanticoke.....		3	2	1		1		1.0
New Castle.....	51,600	3	26	9	.17			
Norristown.....	35,800	5	50	18	.50	0		
North Braddock.....		5	6	9		0		
Oil City.....		5	87	20		0		
Phoenixville.....		4	52	8		0		
Plymouth.....		1	18	15				
Sharon.....		5	73	48		0		
Steelton.....		4	31	26				
Swissvale.....		4	24	3		0		
Warren.....		4	180	5				
West Chester.....		5	92	142		0		
Williamsport.....	43,600	2	139	211	4.84			
Windber.....		1	4	3		0		
Woodlawn.....		5	54	46		0		
York.....	49,600	4	25	70	1.41	0		

MUMPS—Continued

City	Estimated population, July 1, 1927	Average, 1922-1926		1927				
		Number of years	Cases	Cases reported	Cases per 1,000 inhabitants	Deaths registered	Deaths per 1,000 inhabitants	Cases reported for each death registered
Rhode Island:								
Westerly		2	6	5				
Woonsocket	52,300			2	0.04	0		
South Carolina:								
Charleston	75,000	2	15	7	.09	0		
Columbia	50,000	4	72	215	4.30	0		
Greenville		5	23	52		0		
Spartanburg		3	17	2		0		
South Dakota:								
Aberdeen		2	12	23				
Watertown				3				
Texas:								
Cleburne		1	60	20		0		
Galveston	49,900			4	.08	0		
Waco	45,700	5	4	15	.33	0		
Utah:								
Ogden	38,300	5	130	2	.05			
Provo		4	78	155		0		
Vermont:								
Barre		5	45	32		0		
Bennington		3	18	105		0		
Virginia:								
Alexandria		5	39	23		0		
Charlottesville		2	19	1		0		
Lynchburg	38,600	4	243	19	.49	0		
Newport News	51,700	5	122	81	1.57	0		
Petersburg	37,100	5	10	35	.94	0		
Roanoke	63,200	4	23	11	.17	0		
Suffolk		1	2	13		0		
Washington:								
Aberdeen		4	18	7		0		
Yakima		5	174	11				
West Virginia:								
Bluefield		2	2	1		0		
Charleston	53,400	5	23	12	.22	0		
Clarksburg		5	101	573		0		
Wheeling		5	23	7		0		
Wisconsin:								
Beloit		5	93	20		0		
Eau Claire		5	35	328		0		
Fond du Lac		2	6	2		0		
Green Bay	35,500	4	16	9	.25	0		
Janesville		5	52	22		0		
Kenosha	54,600	5	170	1,043	19.10	0		
La Crosse	30,400	5	112	13	.43	0		
Madison	48,800			37	.76	0		
Oshkosh	33,200			10	.30	0		
Racine	71,300	5	111	545	7.64	0		
Sheboygan	34,500	4	16	6	.17	0		
Waukesha		2	25	4		0		
Wausau		5	18	189		0		
West Allis		3	4	32		0		
Wyoming:								
Casper		1	17	17		0		
Cheyenne		2	6	2		0		

PELLAGRA

City	Estimated population, July 1, 1927	Cases reported, 1927	Cases per 1,000 inhabitants	Deaths registered, 1927	Deaths per 1,000 inhabitants	Cases reported for each death registered
Alabama:						
Bessemer		6		3		2.0
Florence		3		1		3.0
Gadsden				4		
Mobile	67,700			19	0.28	
Selma		13		11		1.2
Tuscaloosa		153		140		1.3
Arkansas:						
Fort Smith		13		2		6.5
Helena		15				
Hot Springs				2		
Little Rock	77,600			28	.36	

¹ Includes inmates at insane asylum.

PELLAGRA—Continued

City	Estimated population, July 1, 1927	Cases reported, 1927	Cases per 1,000 inhabitants	Deaths registered, 1927	Deaths per 1,000 inhabitants	Cases reported for each death registered
California:						
Sacramento.....	74,600	1	0.01	1	0.01	1.0
Stockton.....	49,800	1	.02	1	.02	1.0
Vallejo.....		1		1		1.0
Colorado:						
Colorado Springs.....		2		2		1.0
Florida:						
Orlando.....				1		
West Palm Beach.....				3		
Georgia:						
Athens.....				3		
Augusta.....	56,200			31	.55	
Brunswick.....				4		
Macon.....	60,100			11	.18	
Savannah.....	99,700			24	.24	
Waycross.....		11		6		1.8
Illinois:						
Springfield.....	66,400	1	.02	1	.02	1.0
Iowa:						
Boone.....				1		
Kansas:						
Arkansas City.....		1		0		
Coffeyville.....				1		
Parsons.....		2		2		1.0
Topeka.....	61,900	1	.02	1	.02	1.0
Kentucky:						
Lexington.....	48,100	4	.08	4	.08	1.0
Paducah.....		1		0		
Louisiana:						
Baton Rouge.....				3		
Lake Charles.....		3		1		3.0
Shreveport.....	78,000			20	.26	
Maine:						
Portland.....	77,500			1	.01	
Massachusetts:						
Melrose.....		1		0		
Northampton.....		1		0		
Minnesota:						
Albert Lea.....				1		
Mississippi:						
Jackson.....		220		14		15.7
Missouri:						
Moberly.....				1		
New Hampshire:						
Concord.....				1		
North Carolina:						
Durham.....	45,700			21	.46	
Gastonia.....				9		
Greensboro.....	50,300			10	.20	
New Bern.....				2		
Raleigh.....				20		
Rocky Mount.....		2		2		1.0
Wilmington.....	38,400			14	.10	
Winston-Salem.....	77,100	23	.30	19	.25	1.2
Ohio:						
Hamilton.....	43,800	1	.02	1	.02	1.0
Pennsylvania:						
Nanticoke.....				5		
South Carolina:						
Anderson.....		2		2		1.0
Charleston.....	75,000	69	.92	27	.36	2.6
Columbia.....	50,000			17	.34	
Greenville.....		8		8		1.0
Spartanburg.....				31		
Sumter.....				13		
Texas:						
Beaumont.....	54,400			7	.13	
Cleburne.....		10		8		1.2
Galveston.....	49,900			7	.14	
Texarkana.....				4		
Waco.....	45,700			23	.50	
Virginia:						
Alexandria.....		1		1		1.0
Danville.....				4		
Lynchburg.....	38,600			10	.26	
Petersburg.....	37,100	2	.05	2	.05	1.0
Portsmouth.....	60,700			5	.08	
Roanoke.....	63,200			3	.05	
Suffolk.....		4		2		2.0
Washington:						
Everett.....				1		

* Includes 1 nonresident.

PNEUMONIA (ALL FORMS)

City	Estimated population, July 1, 1927	Cases reported, 1927	Cases per 1,000 inhabitants	Deaths registered, 1927	Deaths per 1,000 inhabitants	Cases reported for each death registered
Alabama:						
Bessemer				44		
Florence		19		15		1.3
Gadsden		34		17		2.0
Mobile	67,700			45	0.66	
Selma				48		
Tuscaloosa		13		4		3.2
Arizona:						
Tucson				80		
Arkansas:						
Fort Smith				47		
Hot Springs				3		
Little Rock	77,500			51	.66	
California:						
Alhambra		20		12		1.7
Bakersfield				19		
Berkeley	69,400	42	0.61	28	.40	1.5
Chico				10		
Eureka				14		
Fresno	62,200			59	.95	
Glendale				54		
Modesto		1		0		
Pasadena	60,500			55	.91	
Pomona				7		
Richmond		17				
Riverside		37		32		1.2
Sacramento	74,600			102	1.37	
San Jose	44,800			33	.74	
Santa Ana				18		
Santa Barbara				28		
Stockton	49,800	49	.98	40	.80	1.2
Vallejo				14		
Colorado:						
Boulder		28		16		1.7
Colorado Springs		56		47		1.2
Greeley				16		
Pueblo	44,100			82	1.86	
Trinidad				20		
Connecticut:						
Bristol		89		19		4.7
Derby				25		
Fairfield		12				
Greenwich		62		21		3.0
Manchester		63		9		7.0
New Britain	71,200	175	2.46	82	1.15	2.1
New London		33		29		1.1
Norwich				22		
Shelton		8				
Stamford Town		50		44		1.1
Stratford		10		7		1.4
Florida:						
Orlando				42		
West Palm Beach				8		
Georgia:						
Athens				10		
Augusta	56,200			73	1.30	
Brunswick				12		
Columbus	45,800			90	1.97	
Macon	60,100			76	1.26	
Savannah	99,700			106	1.06	
Waycross		43		22		2.0
Idaho:						
Pocatello		25		4		6.2
Illinois:						
Alton				24		
Aurora	46,500	123	2.65	39	.84	3.2
Berwyn		38		16		2.4
Bloomington				41		
Blue Island		31		8		3.9
Champaign		22		21		1.0
Chicago Heights				38		
Cicero	68,500	64	.93	27	.39	2.4
Danville	38,200	40	1.05	10	.26	4.0
Decatur	56,000	94	1.68	50	.89	1.9
East Moline		16		8		2.0
East St. Louis	73,100			83	1.14	
Elgin	35,000	93	2.66	35	1.00	2.7
Evanston	46,400	112	2.41	43	.93	2.6
Forest Park				9		

PNEUMONIA (ALL FORMS)—Continued

City	Estimated population, July 1, 1927	Cases reported, 1927	Cases per 1,000 inhabitants	Deaths registered, 1927	Deaths per 1,000 inhabitants	Cases reported for each death registered
Illinois—Continued.						
Freeport				32		
Galesburg		37		32		1.2
Jacksonville		84		60		1.4
Joliet	41,500			48	1.16	
Kewanee		36				
La Salle		30		12		2.5
Marion		4		2		2.0
Maywood		38		21		1.8
Moline	35,100	93	2.65	28	.80	3.3
Mount Vernon				19		
Murphysboro				9		
Oak Park	55,600	138	2.48	43	.77	3.2
Pekin		18		15		1.2
Peoria	83,500			107	1.28	
Quincy	39,500	49	1.24	32	.81	1.5
Rockford	80,900	93	1.15	42	.52	2.2
Rock Island	41,900	42	1.00	22	.53	1.9
Springfield	66,400	170	2.56	46	.69	3.7
Urbana		10				
Waukegan		21				
Indiana:						
Connersville				9		
Crawfordsville				14		
Elkhart				48		
Elwood				13		
Evansville	96,600			78	.81	
Huntington		4		1		4.0
Kokomo	39,100			21	.54	
La Fayette				33		
Michigan City				32		
Mishawaka				20		
Muncie	45,800			40	.87	
New Albany				25		
New Castle				12		
Peru				20		
Richmond				24		
South Bend	84,200			92	1.09	
Terre Haute	72,700			68	.94	
Vincennes				31		
Wabash				8		
Iowa:						
Boone				12		
Burlington		37		11		3.4
Cedar Rapids	54,100			50	.92	
Iowa City		2				
Muscatine		35		12		2.9
Kansas:						
Arkansas City		11		10		1.1
Chanute				11		
Coffeyville		27		12		2.2
Eldorado		17		8		2.1
Emporia		20		8		2.5
Fort Scott		4		1		4.0
Hutchinson		10		4		2.5
Lawrence				18		
Leavenworth		7				
Parsons		36		30		1.2
Salina		17				
Topeka	61,900	99	1.60	55	.89	1.8
Kentucky:						
Covington	58,700			92	1.57	
Lexington	48,100			111	2.31	
Paducah				38		
Louisiana:						
Baton Rouge				39		
Lake Charles				13		
Shreveport	78,000			60	.77	
Maine:						
Auburn		37		22		1.7
Bangor		28		27		1.0
Bath				23		
Biddeford				23		
Lewiston	36,100			35	.97	
Portland	77,500			69	.89	
South Portland		12				
Waterville				15		
Westbrook				17		
Maryland:						
Cumberland		64		43		1.5
Frederick		18		17		1.1

PNEUMONIA (ALL FORMS)—Continued

City	Estimated population, July 1, 1927	Cases reported, 1927	Cases per 1,000 inhabitants	Deaths registered, 1927	Deaths per 1,000 inhabitants	Cases reported for each death registered
Massachusetts: ¹						
Adams		17		7		
Amesbury		21		23		
Arlington		21		25		
Athol		1		11		
Attleboro		16		12		
Beverly		24		17		
Braintree		12				
Brockton	65,300	99	1.52	60	0.92	
Brookline	44,800	27	.60	23	.51	
Chelsea	49,000	88	1.80	60	1.22	
Chicopee	44,300	9	.20	22	.50	
Clinton		46		19		
Danvers		20		17		
Easthampton		21		10		
Everett	42,900	58	1.35	16	.37	
Framingham		12		13		
Gardner		16		20		
Gloucester		15		33		
Greenfield		9		19		
Haverhill	49,200	62	1.26	47	.96	
Lawrence	93,500	48	.51	59	.63	
Leominster		38		25		
Malden	52,900	81	1.53	27	.51	
Marlboro		10		18		
Medford	51,300	75	1.46	51	.99	
Melrose		42		22		
Methuen		9		20		
Milford		10		34		
Milton		13		15		
Natick		17		13		
Newburyport		20		32		
Newton	56,000	63	1.12	43	.77	
North Adams		3		24		
Northampton		14		5		
Northbridge		9		11		
Norwood		8		9		
Palmer		2				
Peabody		22		21		
Pittsfield	49,100	35	.71	25	.51	
Plymouth		16		13		
Quincy	65,300	37	.57	41	.63	
Revere	35,200	23	.65	9	.26	
Salem	42,900	28	.65	49	1.14	
Saugus		10		13		
Southbridge		13		10		
Taunton	40,200	17	.42	36	.90	
Wakefield		23		11		
Waltham	36,400	20	.55	4	.11	
Watertown		29				
Webster		4		8		
Westfield		17		13		
Weymouth		8		21		
Winchester		11		9		
Winthrop		14		9		
Woburn		5		6		
Michigan:						
Adrian				16		
Ann Arbor		17		13		1.3
Bay City	49,400	27	.55	6	.12	4.5
Benton Harbor		12		5		2.4
Escanaba				9		
Hamtramck	93,800	56	.60	30	.32	1.9
Highland Park	81,700	97	1.19	24	.29	4.0
Holland		6				
Ironwood		6		1		6.0
Ishpeming		17		8		2.1
Jackson	61,700	48	.78	20	.32	
Kalamazoo	55,500	42	.76	35	.63	1.2
Lansing	75,600	150	1.98	49	.65	3.1
Marquette		37		18		2.1
Mount Clemens		10		9		1.1
Muskegon	45,500			46	1.01	
Pontiac	54,000	89	1.65	43	.80	2.1
Port Huron		50		32		1.6
River Rouge				13		
Saginaw	74,400			122	1.64	

¹ Cases reported by cities in Massachusetts are lobar only; deaths are for all forms.² State census, 1925. ³ Includes 3 nonresidents. ⁴ Includes 1 nonresident. ⁵ Lobar pneumonia only

PNEUMONIA (ALL FORMS)—Continued

City	Estimated population, July 1, 1927	Cases reported, 1927	Cases per 1,000 inhabitants	Deaths registered, 1927	Deaths per 1,000 inhabitants	Cases reported for each death registered
Michigan—Continued.						
Sault Ste. Marie.....		34		9		3.8
Wyandotte.....		9				
Minnesota:						
Albert Lea.....				18		
Brainerd.....				22		
Faribault.....				21		
Hibbing.....				12		
St. Cloud.....				32		
Virginia.....				13		
Winona.....				15		
Mississippi:						
Jackson.....		332		37		9.0
Missouri:						
Cape Girardeau.....				20		
Hannibal.....				15		
Independence.....				41		
Joplin.....		1				
Moberly.....				18		
St. Joseph.....	78,500			138	1.76	
Montana:						
Anaconda.....				10		
Billings.....				26		
Butte.....	43,300	135	3.12	95	2.19	1.4
Great Falls.....				27		
Helena.....		1				
Nebraska:						
Grand Island.....				19		
Lincoln.....	69,900	20	.29	0		
North Platte.....		15		13		1.2
Nevada:						
Reno.....		2		1		2.0
New Hampshire:						
Berlin.....				20		
Claremont.....		42		25		1.7
Concord.....				55		
Dover.....				13		
Keene.....				16		
Laconia.....		24		5		4.8
Manchester.....	84,800			62	.73	
Nashua.....				31		
New Jersey:						
Asbury Park.....		19		13		1.5
Atlantic City.....	54,200	28	.52	9	.17	3.1
Bayonne.....	93,100			57	.61	
Belleville.....		47		15		3.1
Bloomfield.....		90		14		6.4
Bridgeton.....		10				
Cartaret.....		20		2		10.0
Clifton.....		38		22		1.7
Collingswood.....		10		10		1.0
Dover.....		37		10		3.7
East Orange.....	63,300	131	2.07	43	.68	3.0
Englewood.....		33		13		2.5
Garfield.....		37		16		2.3
Hackensack.....		58		46		1.3
Harrison.....		19				
Hoboken.....				101		
Irvington.....		57		21		2.7
Kearny.....		75		27		2.8
Lodi.....		11		7		1.6
Long Branch.....		24		12		2.0
Millville.....		20		11		1.8
Montclair.....		90		30		3.0
Morristown.....		32		9		3.6
New Brunswick.....	39,900			36	.90	
Nutley.....				17		
Orange.....	36,100	101	2.80	41	1.14	2.5
Passaic.....	70,800			67	.95	
Perth Amboy.....	49,100			44	.90	
Plainfield.....		83		31		2.7
Rahway.....		1		0		
Ridgefield Park.....		22		8		2.7
Rutherford.....		18		12		1.5
Summit.....		17		9		1.9
West New York.....				17		
West Orange.....		44		17		2.6
New Mexico:						
Albuquerque.....		41		34		1.2

PNEUMONIA (ALL FORMS)—Continued

City	Estimated population, July 1, 1927	Cases reported, 1927	Cases per 1,000 inhabitants	Deaths registered, 1927	Deaths per 1,000 inhabitants	Cases reported for each death registered
New York:						
Amsterdam.....	35,900	29	0.81	23	0.64	1.3
Auburn.....	35,700	86	2.41	33	.92	2.6
Binghamton.....	73,900	246	3.33	32	.43	7.7
Cohoes.....		43		0		
Corning.....		28		13		2.2
Cortland.....		42		12		3.5
Dunkirk.....		42		21		2.0
Elmira.....	49,500	169	3.41	55	1.11	3.1
Endicott.....		50		15		3.3
Freeport.....		19		6		3.2
Geneva.....		54		26		2.1
Gloversville.....		48		19		2.5
Hornell.....		64		24		2.7
Ithaca.....		36		30		2.9
Jamestown.....	45,100	99	2.20	30	.67	3.3
Johnstown.....		25		14		1.8
Kingston.....		47		41		1.1
Lackawanna.....		143		29		4.9
Little Falls.....		25		14		1.8
Lockport.....		29		13		2.2
Middletown.....		48		11		4.4
Mount Vernon.....	53,300	97	1.82	20	.38	4.8
New Rochelle.....	47,300	54	1.14	41	.87	1.3
Newburgh.....	30,400	41	1.35	26	.86	1.6
Niagara Falls.....	66,600	170	2.55	82	1.23	2.1
North Tonawanda.....		17				
Olean.....		35		17		2.1
Ossining.....		21		10		2.1
Peekskill.....		29		11		2.6
Poughkeepsie.....	35,900	105	2.92	52	1.45	2.0
Rome.....		87		34		2.6
Saratoga Springs.....		46		17		2.7
Schenectady.....	93,200	156	1.67	49	.53	3.2
Troy.....	72,300	242	3.35	89	1.23	2.7
Watertown.....	33,400	61	1.83	31	.93	2.0
Watervliet.....		29		10		2.9
White Plains.....		83		24		3.5
North Carolina:						
Durham.....	45,700			71	1.55	
Gastonia.....				22		
Greensboro.....	50,300			44	.87	
New Bern.....				28		
Raleigh.....				55		
Rocky Mount.....				25		
Wilmington.....	38,400			58	1.51	
Winston-Salem.....	77,100			107	1.39	
Ohio:						
Ashland.....		3		1		3.0
Ashtabula.....				19		
Barberton.....		43		22		2.0
Bellefontaine.....		9		7		1.3
Bucyrus.....				9		
Cambridge.....				12		
Campbell.....				17		
Chillicothe.....				26		
Cleveland Heights.....		25		21		1.2
Conneaut.....		1		1		1.0
Coshocton.....		16		13		1.2
Cuyahoga Falls.....		27		16		1.7
East Cleveland.....		38		15		2.5
East Liverpool.....				25		
Elyria.....				15		
Findlay.....		29		19		1.5
Hamilton.....	43,800			62	1.42	
Kenmore.....		19		11		1.7
Lakewood.....	62,200	55	.88	39	.63	1.4
Lancaster.....				21		
Lima.....	48,700			39	.80	
Lorain.....	44,000			39	.89	
Mansfield.....		64		34		1.9
Marion.....				35		
Middletown.....				31		

* State census, 1925.

* Includes 7 nonresidents.

PNEUMONIA (ALL FORMS)—Continued

City	Estimated population, July 1, 1927	Cases reported, 1927	Cases per 1,000 inhabitants	Deaths registered, 1927	Deaths per 1,000 inhabitants	Cases reported for each death registered
Ohio—Continued.						
New Philadelphia				18		
Norwood				14		
Piqua				22		
Salem				17		
Sandusky				35		
Springfield	71,600			79	1.10	
Steubenville		63		47		1.3
Tiffin				13		
Zanesville				65		
Oregon:						
Salem		25		19		1.3
Pennsylvania:						
Altoona	67,800			72	1.06	
Beaver Falls		9		0		
Berwick				17		
Bethlehem	66,000			48	.73	
Braddock		53		48		1.1
Bradford				18		
Butler				23		
Canonsburg				14		
Carbondale				49		
Carlisle		1		0		
Carnegie		24		12		2.0
Chambersburg				17		
Charleroi		1		0		
Clairton		18		15		1.2
Coatesville				10		
Columbia				20		
Connellsville				15		
Dickson				16		
Donora				12		
Duquesne		19		15		
Easton	37,900	66	1.74	31	.82	2.1
Ellwood City				27		
Farrell				22		
Greensburg		26				
Harrisburg	85,700			123	1.44	
Hazleton	37,500	32	.85	2	.05	16.0
Homestead		12				
Jeannette		30		19		1.6
Kingston				43		
Lancaster	57,700			71	1.23	
Lansford		1				
Latrobe		7		1		7.0
Lebanon		6				
Lewistown		15		8		1.9
McKeesport	49,900			106	2.12	
Mahanoy City		25				
Monessen		51		7		7.3
Nanticoke				40		
New Castle	51,600	13	.25			
Norristown	35,800			56	1.56	
North Braddock		41		10		4.1
Oil City				29		
Phoenixville				16		
Plymouth		6				
Sharon				26		
Steelton				12		
Swissvale		26		21		1.2
Warren		16		12		1.3
Washington				36		
West Chester		40		32		1.2
Williamsburg				7		
Williamsport	43,600	43	.99			
Windber				12		
Woodlawn		36		15		2.4
York	49,600			66	1.33	
Rhode Island:						
Cranston	36,600			34	.93	
Newport				24		
Westerly		5				
Woonsocket	52,300			51	.98	

* Lobar pneumonia only.

† Includes 31 hospital nonresident deaths.

PNEUMONIA (ALL FORMS)—Continued

City	Estimated population, July 1, 1927	Cases reported, 1927	Cases per 1,000 inhabitants	Deaths registered, 1927	Deaths per 1,000 inhabitants	Cases reported for each death registered
South Carolina:						
Charleston.....	75,000	-----	-----	113	1.51	-----
Columbia.....	50,000	-----	-----	59	1.18	-----
Greenville.....	-----	-----	-----	39	-----	-----
Sumter.....	-----	-----	-----	13	-----	-----
South Dakota:						
Sioux Falls.....	-----	-----	-----	37	-----	-----
Watertown.....	-----	6	-----	-----	-----	-----
Texas:						
Amarillo.....	-----	75	-----	46	-----	1.6
Austin.....	38,800	-----	-----	41	1.06	-----
Beaumont.....	54,400	-----	-----	36	.66	-----
Cleburne.....	-----	30	-----	6	-----	5.0
Galveston.....	49,900	-----	-----	47	.94	-----
Orange.....	-----	9	-----	5	-----	1.8
Texarkana.....	-----	-----	-----	18	-----	-----
Tyler.....	-----	-----	-----	11	-----	-----
Waco.....	45,700	-----	-----	43	.94	-----
Utah:						
Provo.....	-----	-----	-----	9	-----	-----
Vermont:						
Barre.....	-----	-----	-----	7	-----	-----
Bennington.....	-----	16	-----	0	-----	-----
Virginia:						
Alexandria.....	-----	82	-----	27	-----	3.0
Charlottesville.....	-----	-----	-----	19	-----	-----
Danville.....	-----	-----	-----	14	-----	-----
Lynchburg.....	38,600	-----	-----	46	1.19	-----
Newport News.....	51,700	-----	-----	53	1.03	-----
Petersburg.....	37,100	-----	-----	51	1.37	-----
Portsmouth.....	60,700	-----	-----	87	1.43	-----
Roanoke.....	63,200	-----	-----	78	1.23	-----
Suffolk.....	-----	72	-----	53	-----	1.4
Washington:						
Aberdeen.....	-----	21	-----	12	-----	1.7
Everett.....	-----	-----	-----	21	-----	-----
Vancouver.....	-----	-----	-----	9	-----	-----
West Virginia:						
Bluefield.....	-----	-----	-----	21	-----	-----
Charleston.....	53,400	-----	-----	66	1.24	-----
Fairmont.....	-----	-----	-----	22	-----	-----
Morgantown.....	-----	-----	-----	19	-----	-----
Wheeling.....	-----	-----	-----	105	-----	-----
Wisconsin:						
Beloit.....	-----	-----	-----	10	-----	-----
Eau Claire.....	-----	22	-----	15	-----	-----
Fond du Lac.....	-----	35	-----	27	-----	1.3
Green Bay.....	35,500	-----	-----	36	1.01	-----
Janesville.....	-----	-----	-----	26	-----	-----
Kenosha.....	54,600	41	.75	29	.53	1.4
La Crosse.....	30,400	-----	-----	45	1.48	-----
Madison.....	48,800	-----	-----	45	.92	-----
Manitowoc.....	-----	-----	-----	18	-----	-----
Marinette.....	-----	-----	-----	14	-----	-----
Oshkosh.....	33,200	-----	-----	36	1.08	-----
Racine.....	71,300	28	.39	46	.65	-----
Sheboygan.....	34,500	-----	-----	23	.67	-----
Stevens Point.....	-----	-----	-----	11	-----	-----
Superior.....	-----	-----	-----	52	-----	-----
Waukesha.....	-----	-----	-----	18	-----	-----
Wausau.....	-----	-----	-----	22	-----	-----
West Allis.....	-----	-----	-----	26	-----	-----
Wyoming:						
Casper.....	-----	-----	-----	13	-----	-----
Cheyenne.....	-----	18	-----	4	-----	4.6

* Lobar pneumonia only.

* Includes 22 nonresidents.

POLIOMYELITIS (INFANTILE PARALYSIS)

City	Estimated population, July 1, 1927	Estimated expectancy		1927				
		Number of years	Cases	Cases re- ported	Cases per 1,000 inhab- itants	Deaths regis- tered	Deaths per 1,000 inhab- itants	Fatal- ities per 100 cases
Alabama:								
Gadsden				1		0		
Arkansas:								
Fort Smith		5	1	3		0		
Hot Springs		4	0	1		0		
Little Rock	77,500	7	0	2	0.03	1	0.01	50.0
California:								
Alhambra		3	2	6		0		
Bakersfield		7	1	21		3		14.3
Berkeley	69,400	7	3	28	.40	0		
Chico		3	1	4		1		25.0
Eureka		7	0	29		12		41.4
Fresno	62,200	6	3	17	.27	3	.05	17.6
Glendale		6	2	3		1		33.3
Modesto				3		1		33.3
Pasadena	60,500	7	3	8	.13	2	.03	25.0
Richmond		7	0	5		0		
Riverside		7	0	5		0		
Sacramento	74,600	7	3	48	.64	14	.19	29.2
San Jose	44,800	6	1	14	.31	3	.07	21.4
Santa Ana		6	0	2		0		
Santa Barbara		3	0	2		0		
Stockton	49,800	4	2	10	.20	3	.06	30.0
Vallejo				6		1		16.7
Colorado:								
Boulder		7	0	7		2		28.6
Colorado Springs		7	0	1		0		
Greeley				2		2		100.0
Connecticut:								
Bristol		6	1	1		1		100.0
Derby				1		0		
Greenwich		7	2	5		0		
New Britain	71,200	7	1	7	.10	0		
New London		6	2	8		1		12.5
Norwich		7	0	3				
Stamford Town				1		0		
Stratford		6	1	1		0		
Georgia:								
Athens		5	0	1		0		
Augusta	56,200	5	1	1	.02	1	.02	100.0
Brunswick		7	0	1		0		
Macon	60,100	7	0	1	.02	1	.02	100.0
Idaho:								
Boise		7	1	8		0		
Pocatello		6	0	1		0		
Illinois:								
Berwyn		5	1	10		1		10.0
Bloomington		7	1	9		2		22.2
Champaign		7	1	3		3		100.0
Danville		7	0	2	.05	0		
Decatur	38,200	4	2	20	.36	4	.07	20.0
East St. Louis	56,000	7	1	2	.03	1	.01	50.0
Elgin	73,100	7	1	3	.09	0		
Evanston	35,000	7	2	4	.09	2	.04	50.0
Freepoint	46,400	6	1	8		1		12.5
Galesburg		6	1	2		0		
Jacksonville		7	1	3		1		33.3
La Salle		6	1	1		0		
Maywood		7	0	1		0		
Oak Park	55,600	7	1	3	.05	1	.02	33.3
Peoria	83,500	7	1	1	.01	1	.01	100.0
Rockford	80,900	7	3	25	.31	4	.05	16.0
Springfield	66,400	6	3	3	.05	2	.03	66.7
Urbana		5	0	2		0		
Waukegan		6	1	1				
Indiana:								
Anderson		5	0	1		0		
Evansville	96,600	1	0	10	.10	1	.01	10.0
Kokomo	39,100	7	1	1	.03	0		
La Fayette		7	1	1		0		
Logansport		7	0	1		0		
Michigan City		6	0	1		0		
Mishawaka		6	1	2		0		
Muncie	45,800	7	1	2	.04	0		
New Castle		5	1	1		1		100.0
Peru				1		0		

POLIOMYELITIS (INFANTILE PARALYSIS)—Continued

City	Estimated population, July 1, 1927	Estimated expectancy		1927				
		Number of years	Cases	Cases reported	Cases per 1,000 inhabitants	Deaths registered	Deaths per 1,000 inhabitants	Fatalities per 100 cases
Indiana—Continued.								
Richmond		7	0	17		4		23.5
South Bend	84,200	6	1	7	0.08	0		
Terre Haute	72,700	7	0	1	.01	0		
Iowa:								
Boone		4	0			1		
Burlington		6	1	1		0		
Clinton		4	0	4		2		50.0
Dubuque	41,900	6	1	7	.17			
Iowa City		6	1	2				
Muscatine		6	1	1		1		100.0
Ottumwa		5	0	2				
Waterloo	37,000	5	1	16	.43	5	0.14	31.2
Kansas:								
Arkansas City		2	0	1		0		
Coffeyville		7	0	1		0		
Eldorado		6	0	3		0		
Emporia		4	0	1		0		
Hutchinson		6	1	7		1		14.3
Leavenworth		7	0	1				
Parsons		6	0	3		0		
Salina		2	1	2				
Topeka	61,900	6	4	8	.13	2	.03	25.0
Kentucky:								
Lexington	48,100	4	0	12	.25	2	.04	16.7
Paducah		6	1	1		0		
Louisiana:								
Shreveport	78,000	5	1	2	.03	0		
Maine:								
Auburn		6	1	4		0		
Bangor		5	1	2		1		50.0
Bath		7	1	1		0		
Lewiston	36,100			3	.08	1	.03	33.3
Portland	77,500	7	1	29	.37	6	.08	20.7
South Portland		2	1	2				
Waterville		6	1	3		0		
Maryland:								
Cumberland		6	1	2		0		
Massachusetts:								
Adams		7	1	1		0		
Amesbury		5	2	12		1		8.3
Arlington		7	1	8		0		
Athol		2	0	1		1		100.0
Attleboro		7	1	3		1		33.3
Beverly		7	1	2		0		
Braintree		6	1	4		0		
Brockton	165,300	7	1	7	.11	0		
Brookline	44,800	7	3	16	.36	3	.07	18.7
Chelsea	49,000	6	1	20	.41	1	.02	5.0
Chicopee	44,300	7	0	3	.07	0		
Danvers		7	1	1		1		100.0
Easthampton		7	0	1		1		100.0
Everett	42,900	7	5	14	.33	0		
Frammingham		7	1	1		0		
Gardner		6	1	6		0		
Gloucester		1	0	15		0		
Greenfield		6	1	1		0		
Haverhill	149,200	7	6	110	2.24	17	.35	15.5
Lawrence	193,500	7	8	20	.21	1	.01	5.0
Malden	52,900	7	2	13	.25	0		
Medford	51,300	7	2	17	.33	4	.08	23.5
Melrose		7	2	4		0		
Methuen		7	1	6		0		
Milford		7	0	4		0		
Milton		2	0	7		0		
Natick		6	1	4		0		
Newburyport		7	0	13				
Newton	56,000	7	6	18	.32	1	.02	5.6
North Adams		7	1	3		1		33.3
Northampton		7	1	5		0		
Northbridge		7	1	4		0		
Norwood		4	2	7				
Peabody		7	1	6		0		
Pittsfield	49,100	7	4	1	.02	0		

¹ State census, 1925.

POLIOMYELITIS (INFANTILE PARALYSIS)—Continued

City	Estimated population, July 1, 1927	Estimated expectancy		1927				
		Number of years	Cases	Cases re-ported	Cases per 1,000 inhab-itants	Deaths registered	Deaths per 1,000 inhab-itants	Fatal-ities per 100 cases
Massachusetts—Continued.								
Plymouth.....		6	0	4				
Quincy.....	65,300	7	3	17	0.26	1	0.02	5.9
Revere.....	35,200	2	0	20	.57	1	.03	5.0
Salem.....	42,900	7	1	19	.44	0		
Saugus.....		6	1	5		1		20.0
Waltham.....	36,400	7	1	9	.25	0		
Watertown.....		7	1	8				
Webster.....		5	0	2				
Westfield.....		7	1	2		0		
Weymouth.....				12		0		
Winchester.....		7	1	1				
Winthrop.....		7	1	3		0		
Woburn.....		6	1	3		0		
Michigan:								
Ann Arbor.....		7	2	10		1		10.0
Bay City.....	49,400	6	1	2	.04	1	.02	50.0
Highland Park.....	81,700	7	2	4	.05	0		
Holland.....		6	0	1				
Jackson.....	61,700	6	0	16	.26	0		
Kalamazoo.....	55,500	7	2	5	.09	1	.02	20.0
Lansing.....	75,600	7	1	8	.11	2	.03	25.0
Muskegon.....	45,500	7	0	1	.02	1	.02	100.0
Pontiac.....	54,000	7	1	2	.04	0		
River Rouge.....		3	4	4		0		
Saginaw.....	74,400	6	1	1	.01	1	.01	100.0
Wyandotte.....		2	1	1		1		100.0
Minnesota:								
Brainerd.....		1	5			1		
St. Cloud.....		5	0	1		0		
Virginia.....		1	1	4		0		
Winona.....		5	0			2		
Mississippi:								
Jackson.....		4	1	4		0		
Missouri:								
Independence.....		3	0	2		1		50.0
Moberly.....		5	0	18		5		27.8
St. Joseph.....	78,500	7	1	4	.05	2	.03	50.0
Springfield.....	51,200	5	0	3	.06			
Montana:								
Butte.....	43,300	6	0			1	.02	
Great Falls.....		6	2	8		1		12.5
Helena.....				1		0		
Nebraska:								
Grand Island.....		7	1	2		0		
North Platte.....		4	0	1		0		
Nevada:								
Reno.....		7	0	5		2		40.0
New Hampshire:								
Claremont.....		3	2	1		1		100.0
Dover.....		7	1	1		0		
Laconia.....		1	1	2		0		
Manchester.....	84,800	5	1	5	.06	1	.01	20.0
Nashua.....		7	1	2		0		
New Jersey:								
Atlantic City.....	54,200	2	2	1	.02	0		
Bayonne.....	93,100	6	1	1	.01	1	.01	100.0
Belleville.....		6	1	3		0		
Bloomfield.....		7	1	5		0		
Clifton.....		6	2	11		2		18.2
Collingswood.....		2	1	3		3		
East Orange.....	63,300	7	4	5	.08	0		
Englewood.....		6	1	2		0		
Garfield.....		5	1	1		0		
Hackensack.....		7	0	2		1		50.0
Harrison.....		7	0	1				
Irvington.....		6	1	1		0		
Kearny.....		6	2	7		1		14.3
Long Branch.....		7	1	2		0		
Montclair.....		7	2	8		0		
Nutley.....				3		0		
Passaic.....	70,800	7	1	7	.10	1	.01	14.3
Perth Amboy.....	49,100	7	1	1	.02	0		

POLIOMYELITIS (INFANTILE PARALYSIS)—Continued

City	Estimated population, July 1, 1927	Estimated expectancy		1927				
		Number of years	Cases	Cases reported	Cases per 1,000 inhabitants	Deaths registered	Deaths per 1,000 inhabitants	Fatalities per 100 cases
New Jersey—Continued.								
Plainfield		7	1	4		1		25.0
Ridgefield Park		3	0	2		0		
Rutherford		3	0	3		0		
Summit		7	0	3		1		33.3
West New York		7	1	1		0		
West Orange		7	0	3		0		
New Mexico:								
Albuquerque		4	0	15		5		33.3
New York:								
Auburn	135,700	5	0	2	0.06	1	0.03	50.0
Binghamton	73,900	7	2	3	.04	0		
Elmira	49,500	5	1	1	.02	0		
Endicott		3	2	2		0		
Freeport		2	1	2		0		
Ithaca		7	4	1		0		
Jamestown	45,100	7	4	2	.04	0		
Johnstown		4	1	2		0		
Kingston		6	1	1		0		
Lackawanna		6	0	1		0		
Middletown		7	2	1		0		
Mount Vernon	53,300	7	1	5	.09	0		
New Rochelle	47,300	6	3	3	.06	1	.02	33.3
Newburgh	30,400	7	1	2	.07	0		
Niagara Falls	66,600	7	1	1	.02	0		
North Tonawanda		7	1	2				
Olean		7	2	2		0		
Ossining		3	1	9		0		
Peekskill		7	1	2		0		
Poughkeepsie	35,900	7	2	5	.14	0		
Saratoga Springs		7	1	5		1		20.0
Schenectady	93,200	7	3	6	.06	1	.01	16.7
Troy	72,300	7	1	3	.04	0		
Watertown	33,400	7	3	4	.12	1	.03	25.0
Watervliet		5	0	2		0		
White Plains		7	3	6		0		
North Carolina:								
Asheville		7	1	1		0		
Durham	45,700			1	.02	0		
Greensboro	50,300	5	1	1	.02	0		
Wilmington	38,400	7	1	1	.03	0		
Winston-Salem	77,100	6	2	2	.03	1	.01	50.0
Ohio:								
Alliance		3	1	13		1		7.7
Barberton		7	0	15		0		
Cambridge		5	1	1		0		
Chillicothe		7	0	1		1		100.0
Cleveland Heights		5	1	4		0		
Coshocton		4	0	5		0		
Cuyahoga Falls		5	0	1		0		
East Cleveland		7	1	10		1		10.0
East Liverpool				1		1		100.0
Elyria		7	0	1		0		
Findlay		7	0	2		1		50.0
Hamilton	43,800	7	1	2	.05	0		
Kenmore		6	1	4		0		
Lakewood	62,200	4	0	3	.05	0		
Lancaster				4		0		
Lorain	44,000	7	1	2	.05	1	.02	50.0
Mansfield		7	0	11		0		
Marion		5	0	14		2		14.3
Martins Ferry		4	1	33		2		6.1
Middletown		7	0	3		1		33.3
Newark				13		2		15.4
New Philadelphia		4	0	34		1		2.9
Norwood		7	0	8		1		12.5
Springfield	71,600	7	1	3	.04	1	.01	33.3
Steubenville		7	2	5		0		
Tiffin		2	0	1		0		
Warren		5	0	8		0		
Zanesville		7	0	7		0		
Oregon:								
Salem		1	0	6		0		

¹ State census, 1925.

POLIOMYELITIS (INFANTILE PARALYSIS)—Continued

City	Estimated population, July 1, 1927	Estimated expectancy		1927				
		Number of years	Cases	Cases reported	Cases per 1,000 inhabitants	Deaths registered	Deaths per 1,000 inhabitants	Fatalities per 100 cases
Pennsylvania:								
Altoona.....	67,800	7	1	4	0.06	0		
Butler.....		7	1	3		0		
Canonsburg.....		4	0	2		0		
Chambersburg.....				1		1		100.0
Connellsville.....		7	0	1		0		
Harrisburg.....	85,700	6	1	1	.01	0		
Lancaster.....	57,700	7	0	23	.40	15	0.26	65.2
Lebanon.....		2	0	1				
McKeesport.....	40,900	7	0	1	.02	0		
Oil City.....		7	1	2		1		50.0
Sharon.....				1		0		
Washington.....		6	0	2		0		
West Chester.....		7	1	2		0		
Windber.....				3		0		
Rhode Island:								
Central Falls.....		5	0	1				
Newport.....		7	1	17		2		11.8
Westerly.....		2	0	2				
Woonsocket.....	52,300			3	.06	0		
South Carolina:								
Charleston.....	75,000	2	3	3	.04	0		
Spartanburg.....		4	1	1		0		
South Dakota:								
Aberdeen.....		6	0	1				
Sioux Falls.....		7	0	5		1		20.0
Watertown.....				3		1		33.3
Texas:								
Amarillo.....		6	0	11		5		45.5
Austin.....	38,800	3	0	3	.08	0		
Cleburne.....		5	0	2		0		
San Angelo.....				2				
Temple.....				1				
Texarkana.....		5	0			1		
Waco.....	45,700	7	0	3	.07	1	.02	33.3
Utah:								
Ogden.....	38,300	7	0	3	.08			
Provo.....				1		1		100.0
Vermont:								
Bennington.....		3	1	3		0		
Virginia:								
Alexandria.....		7	1	1		0		
Lynchburg.....	38,600	5	1	1	.03	1	.03	100.0
Petersburg.....	37,100	7	1	2	.05	0		
Roanoke.....	63,200	6	1	1	.02	0		
Washington:								
Aberdeen.....		7	1	1		1		100.0
Yakima.....		7	1	4		0		
West Virginia:								
Charleston.....	53,400	6	0	2	.04	1	.02	50.0
Clarksburg.....		6	0	5		1		20.0
Huntington.....	66,900			38	.57			
Wheeling.....		7	0	50		5		10.0
Wisconsin:								
Fond du Lac.....		7	1	1		0		
Janesville.....		7	1	1		0		
Kenosha.....	54,600	7	1	2	.04			
La Crosse.....	30,400	7	1	11	.36	4	.13	36.4
Madison.....	48,800	7	1	11	.23	2	.04	18.2
Manitowoc.....		5	0	3		0		
Oshkosh.....	33,200	7	0	1	.03	1	.03	100.0
Racine.....	71,300	7	1	4	.06	0		
Stevens Point.....				1		0		
Waukesha.....				1		0		

RABIES IN ANIMALS

City	Cases reported, 1927	City	Cases reported, 1927
Alabama:		Missouri:	
Florence.....	7	Hannibal.....	4
Mobile.....	28	Springfield.....	7
Arkansas:		Nebraska:	
Hot Springs.....	12	North Platte.....	5
Little Rock.....	49	New Jersey:	
California:		Bayonne.....	18
Glendale.....	5	Belleville.....	2
Pasadena.....	22	Bloomfield.....	1
Riverside.....	1	Clifton.....	7
Connecticut:		Collingswood.....	2
Bristol.....	4	Dover.....	2
Greenwich.....	6	East Orange.....	7
Norwich.....	2	Englewood.....	2
Stamford Town.....	18	Garfield.....	1
Georgia:		Harrison.....	1
Savannah.....	28	Irrington.....	2
Waycross.....	2	Kearny.....	2
Idaho:		Montclair.....	1
Pocatello.....	1	Morristown.....	2
Illinois:		Nutley.....	9
Berwyn.....	10	Orange.....	2
Danville.....	5	Passaic.....	5
East St. Louis.....	6	Plainfield.....	11
Evanston.....	10	Rahway.....	2
Marion.....	2	Summit.....	6
Urbana.....	4	New Mexico:	
Indiana:		Albuquerque.....	4
Crawfordsville.....	1	New York:	
Kokomo.....	40	Mount Vernon.....	13
Iowa:		Newburgh.....	1
Ottumwa.....	2	Saratoga Springs.....	26
Kansas:		White Plains.....	2
Leavenworth.....	2	North Carolina:	
Topeka.....	1	New Bern.....	6
Maryland:		Wilmington.....	38
Cumberland.....	1	Ohio:	
Frederick.....	2	Barberton.....	4
Massachusetts:		Cambridge.....	1
Brockton.....	3	Chillicothe.....	19
Brookline.....	28	Lorain.....	5
Frammingham.....	3	Sandusky.....	6
Melrose.....	5	Oklahoma:	
Milton.....	12	Bartlesville.....	5
Natick.....	4	Pennsylvania:	
Northbridge.....	7	Nanticoke.....	12
Peabody.....	32	South Carolina:	
Quincy.....	19	Sumter.....	3
Salem.....	10	Texas:	
Taunton.....	1	Amarillo.....	2
Wakefield.....	3	Cleburne.....	4
Weymouth.....	4	Orange.....	2
Winchester.....	2	Wisconsin:	
Michigan:		Racine.....	1
Highland Park.....	3	Wyoming:	
Marquette.....	3	Casper.....	1
Mount Clemens.....	2	Cheyenne.....	6
Pontiac.....	30		
Port Huron.....	1		

RABIES IN MAN

City	Deaths registered, 1927	City	Deaths registered, 1927
Arkansas:		Michigan:	
Hot Springs.....	1	Highland Park.....	1
Georgia:		New Jersey:	
Savannah.....	2	Nutley.....	1
Illinois:		Ohio:	
Alton.....	1	Alliance.....	1
Maywood.....	1	Pennsylvania:	
Kansas:		Bradock.....	1
Lawrence.....	1	Canonsburg.....	1
Maine:		Wisconsin:	
Bangor.....	1	Racine.....	1

ROCKY MOUNTAIN SPOTTED (OR TICK) FEVER

City	Cases reported, 1927	Deaths registered, 1927	City	Cases reported, 1927	Deaths registered, 1927
Colorado:			Washington:		
Colorado Springs.....	1	0	Yakima.....	1	0
Montana:			Wyoming:		
Billings.....	1	0	Casper.....	12	1
Helena.....	1	0			

SCARLET FEVER

City	Estimated population, July 1, 1927	Estimated expectancy		1927				
		Number of years	Cases	Cases reported	Cases per 1,000 inhabitants	Deaths registered	Deaths per 1,000 inhabitants	Fatalities per 100 cases
Alabama:								
Bessemer.....		2	8	9		0		
Florence.....		3	7	60		1		1.7
Gadsden.....		1	14	10		0		
Mobile.....		7	25	43	0.64	1	0.01	2.3
Tuscaloosa.....	67,700			7		0		
Arizona:								
Tucson.....		5	24	22		0		
Arkansas:								
Fort Smith.....		5	25	13		0		
Helena.....				13				
Hot Springs.....		4	4	7		0		
Little Rock.....	77,500	7	62	81	1.05	1	.01	1.2
California:								
Alhambra.....		3	28	80		0		
Bakersfield.....		7	29	13		0		
Berkeley.....	69,400	7	131	184	2.65	0		
Chico.....				45		1		2.2
Eureka.....		6	32	4		0		
Fresno.....	62,200	4	56	74	1.19	0		
Glendale.....		6	46	90		0		
Modesto.....		3	16	19		0		
Pasadena.....	60,500	7	104	122	2.02	0		
Richmond.....		7	35	67		0		
Riverside.....		7	32	45		0		
Sacramento.....	74,600	7	72	72	.97	4	.05	5.6
San Jose.....	44,800	7	98	250	5.58	1	.02	.4
Santa Ana.....		6	45	67		1		1.5
Santa Barbara.....		3	60	25		0		
Stockton.....	49,800	4	106	117	2.35	1	.02	.9
Vallejo.....		5	27	10		1		10.0
Colorado:								
Boulder.....		7	14	125		0		
Colorado Springs.....		7	89	265		0		
Greeley.....		4	22	194		0		
Pueblo.....	44,100	6	78	427	9.68	1	.02	.2
Trinidad.....		7	31	128		1		.8
Connecticut:								
Bristol.....		6	22	109		0		
Fairfield.....		6	52	92				
Greenwich.....		7	63	143		2		1.4
Manchester.....		6	48	18		0		
New Britain.....	71,200	7	103	154	2.16	0		
New London.....		6	37	111		0		
Norwich.....		7	32	149				
Shelton.....		2	135	21				
Stamford Town.....				135		0		
Stratford.....		6	50	42		0		
Florida:								
Orlando.....		1	1	12		1		8.3
West Palm Beach.....		3	1	6		0		
Georgia:								
Athens.....		5	12	18		0		
Augusta.....	56,200	5	34	72	1.28	3	.05	4.2
Brunswick.....		7	2	13		0		
Macon.....	60,100	7	21	49	.82	0		
Savannah.....	99,700	7	28	54	.54	2	.02	3.7
Waycross.....		1	14	46		0		

SCARLET FEVER—Continued

City	Estimated population, July 1, 1927	Estimated expectancy		1927				
		Number of years	Cases	Cases reported	Cases per 1,000 inhabitants	Deaths registered	Deaths per 1,000 inhabitants	Fatalities per 100 cases
Idaho:								
Boise		7	42	44		1		2.3
Pocatello		6	5	88		0		
Illinois:								
Alton		4	51	86		2		2.3
Aurora	46,500	6	100	61	1.31	2	0.04	3.3
Berwyn		5	53	50		0		
Bloomington		7	60	49		1		2.0
Blue Island		7	46	12		0		
Champaign		7	36	25		1		4.0
Chicago Heights		5	25	113		0		
Cicero	68,500	7	79	118	1.72	1	.01	.8
Danville	38,200	7	48	70	1.83	2	.05	2.9
Decatur	56,000	4	148	128	2.29	1	.02	.8
East Moline		3	10	13		0		
East St. Louis	73,100	7	114	75	1.03	0		
Elgin	35,000	7	52	48	1.37	0		
Evanston	46,400	7	149	102	2.20	2	.04	2.0
Forest Park		2	18			1		
Freeport		6	55	15		0		
Galesburg		7	29	45		0		
Jacksonville		7	41	18		0		
Joliet	41,500	3	37	17	.41	0		
Kewanee		5	23	22				
La Salle		6	15	158		0		
Marion		1	14	6		0		
Maywood		7	49	19				
Moline	35,100	7	23	33	.94	2	.06	6.1
Mount Vernon		1	1			1		
Murphysboro		5	25			2		
Oak Park	55,600	7	141	143	2.57	1	.02	.7
Pekin		7	29	30		0		
Peoria	83,500	7	275	82	.98	1	.01	1.3
Quincy	39,500	7	47	31	.78	0		
Rockford	80,900	7	170	252	3.11	3	.04	1.2
Rock Island	41,900	7	28	47	1.12	2	.05	4.3
Springfield	66,400	6	105	79	1.19	2	.03	2.5
Urbana		5	21	30		0		
Waukegan		6	60	95				
Indiana:								
Anderson		7	56	188		0		
Connersville		3	26	47		1		2.1
Crawfordsville		7	38	11		0		
East Chicago	49,100	7	38	22	.45			
Elkhart		3	58	228		0		
Elwood		7	5	7		0		
Evansville	96,600			89	.92	1	.01	1.1
Gary	85,200	6	123	126	1.48	1	.01	.8
Huntington		5	54	9		1		11.1
Kokomo	39,100	7	22	18	.46	0		
La Fayette		7	45	90		6		6.7
La Porte		5	13	9		0		
Logansport		7	22	55				
Michigan City		6	45	115		0		
Mishawaka		4	55	80		1		1.2
Muncie	45,800	7	60	163	3.56	0		
New Albany		6	13	54		2		3.7
New Castle		6	14	25		0		
Peru		2	20	6		0		
Richmond		7	22	206		0		
South Bend	84,200	6	244	113	1.34	0		
Terre Haute	72,700	7	155	72	.99	1	.01	1.4
Vincennes		1	23	5		0		
Whiting		6	9	8				
Iowa:								
Boone		4	28	22		0		
Burlington		7	42	30		0		
Cedar Rapids	54,100	7	61	41	.76	0		
Clinton		6	32	45		1		2.3
Davenport	152,500	6	55	63	1.20			
Dubuque	41,900	6	45	30	.72			
Iowa City		6	15	9				
Muscatine		6	39	22		0		
Ottumwa		4	33	64				
Waterloo	37,000	5	72	33	.89	0		

¹ State census, 1925.

SCARLET FEVER—Continued

City	Estimated population, July 1, 1927	Estimated expectancy		1927				
		Num- ber of years	Cases	Cases re- ported	Cases per 1,000 inhab- itants	Deaths regis- tered	Deaths per 1,000 inhab- itants	Fatal- ities per 100 cases
Kansas:								
Arkansas City		2	19	17		1		5.9
Coffeyville		7	18	75		2		2.7
Eldorado		6	68	51		1		2.0
Emporia		4	40	38		0		
Fort Scott		7	18	10		0		
Hutchinson		6	34	60		5		8.3
Lawrence		7	30	21		0		
Leavenworth		7	20	18				
Parsons		6	18	83		0		
Salina		2	74	63				
Topeka	61,900	7	150	105	1.70	3	0.05	2.9
Kentucky:								
Covington	58,700	5	95	111	1.89	0		
Lexington	48,100	5	41	45	.94	0		
Paducah		7	32	101		0		
Louisiana:								
Baton Rouge		5	13	25		0		
Lake Charles		4	7	9		0		
Monroe		1	8	18				
Shreveport	78,000	5	20	60	.77	1	.01	1.7
Maine:								
Auburn		6	48	19		0		
Bangor		5	18	134		0		
Bath		7	15	5		0		
Biddeford		7	10	21		0		
Lewiston	36,100	7	93	40	1.11	1	.03	2.5
Portland	77,500	7	137	61	.79	3	.04	4.9
South Portland		2	11	17				
Waterville		7	14	17		0		
Westbrook		1	60	12		0		
Maryland:								
Cumberland		6	40	38		0		
Frederick		1	190	46		0		
Massachusetts:								
Adams		7	10	257		2		.8
Amesbury		5	30	13		0		
Arlington		7	60	167		0		
Athol		2	22	21		0		
Attleboro		7	53	85		0		
Beverly		7	50	119		0		
Braintree		6	35	88		1		1.1
Brockton	165,300	7	121	445	6.81	2	.03	.4
Brookline	44,800	7	82	127	2.83	0		
Chelsea	49,000	7	120	97	1.98	0		
Chicopee	44,300	7	57	52	1.17	0		
Clinton		7	27	43		0		
Danvers		7	31	61				
Easthampton		7	19	55		1		1.8
Everett	42,900	7	138	174	4.06	1	.02	.6
Frammingham		7	66	52		1		1.9
Gardner		7	32	60		0		
Gloucester		1	35	79		2		2.5
Greenfield		6	80	92		0		
Haverhill	149,200	7	123	200	4.07	3	.06	1.5
Lawrence	193,500	7	135	398	4.26	4	.04	1.0
Leominster		7	42	32		0		
Malden	52,900	7	169	189	3.57	2	.04	1.1
Marlboro		6	32	64		0		
Medford	51,300	7	153	342	6.67	0		
Melrose		7	50	77		1		1.3
Methuen		7	61	155		1		.6
Milford		7	29	19		0		
Milton		2	29	44		0		
Natick		6	33	103		0		
Newburyport		7	24	90		1		1.1
Newton	56,000	7	147	153	2.73	0		
North Adams		7	13	212		1		.5
Northampton		7	52	170		1		.6
Northbridge		7	11	12		1		8.3
Norwood		5	24	25				

¹ State census, 1925.² Includes 5 nonresidents.³ Nonresident.

SCARLET FEVER—Continued

City	Estimated population, July 1, 1927	Estimated expectancy		1927				
		Number of years	Cases	Cases reported	Cases per 1,000 inhabitants	Deaths registered	Deaths per 1,000 inhabitants	Fatalities per 100 cases
Massachusetts—Continued.								
Palmer		3	6	2				
Peabody		7	58	72		0		
Pittsfield	49,100	7	144	457	9.31	7	0.14	1.5
Plymouth		6	18	7				
Quincy	65,300	7	161	376	5.76	4	.06	1.1
Revere	35,200	2	100	189	5.37	0		
Salem	42,900	7	91	224	5.22	1	.02	.4
Saugus		7	37	118		0		
Southbridge		7	13	10		0		
Taunton	40,200	5	53	65	1.62	0		
Wakefield		7	51	48		0		
Waltham	36,400	7	122	91	2.50	2	.05	2.2
Watertown		7	62	220				
Webster		5	19	48				
Westfield		7	16	33		0		
Weymouth				84		0		
Winchester		7	34	49				
Winthrop		7	39	147		0		
Woburn		6	32	108		0		
Michigan:								
Adrian		4	19	21		1		4.8
Ann Arbor		7	53	59		0		
Bay City	49,400	7	119	216	4.37	3	.06	1.4
Benton Harbor		7	48	164		5		3.0
Escanaba		1	47	4		0		
Hamtramck	93,800	7	36	40	.43	1	.01	2.5
Highland Park	81,700	7	186	125	1.53	4	.05	3.2
Holland		6	64	8				
Ironwood		7	78	36		0		
Ishpeming		7	24	6		0		
Jackson	61,700	7	164	118	1.91	0		
Kalamazoo	55,500	7	203	140	2.52	0		
Lansing	75,600	7	233	204	2.70	1	.01	.5
Marquette		6	34	13		0		
Mount Clemens		2	77	38		1		2.6
Muskegon	45,500	7	109			1	.02	
Pontiac	54,000	7	255	64	1.19	0		
Port Huron		7	86	40		0		
River Rouge		3	41	25		2		8.0
Saginaw	74,400	7	156	170	2.28	3	.04	1.8
Sault Ste. Marie		7	30	47		1		2.1
Wyandotte		2	55	57		0		
Minnesota:								
Albert Lea		2	14			1		
Austin		6	35	33				
Brainerd		2	15	18		0		
Faribault		6	35	50		0		
Hibbing		6	101	8		0		
Mankato		6	26	28		0		
St. Cloud		5	38	95		0		
Virginia		3	159	62		1		1.6
Winona		6	46	161		0		
Mississippi:								
Jackson		4	20	30		1		3.3
Missouri:								
Cape Girardeau		1	12	73		0		
Hannibal		2	38	236		0		
Independence		3	51	19		1		5.3
Joplin		6	32	30				
St. Joseph	78,500	7	109	172	2.19	1	.01	.6
Springfield	51,200	6	53	99	1.93			
Montana:								
Anaconda		6	19	116		0		
Billings		1	49	41		0		
Butte	43,300	6	30			3	.07	
Great Falls		6	83	215		1		.5
Helena		5	77	45		0		
Nebraska:								
Grand Island		5	17	9		1		11.1
Lincoln	69,900	7	76	126	1.80	2	.03	1.6
North Platte		5	17	16		0		
Nevada:								
Reno		7	16	13		0		

SCARLET FEVER—Continued

City	Estimated population, July 1, 1927	Estimated expectancy		1927				
		Number of years	Cases	Cases re- ported	Cases per 1,000 inhab- itants	Deaths regis- tered	Deaths per 1,000 inhab- itants	Fatal- ities per 100 cases
New Hampshire:								
Berlin.....		6	13	42		1		2
Claremont.....		3	7	30		1		3.3
Concord.....		7	53	35		1		2.9
Dover.....		7	8	84		0		
Keene.....		7	25	14		0		
Laconia.....		1	8	13		0		
Manchester.....	84,800	7	116	75	0.88	1	0.01	1.3
Nashua.....		7	63	29		0		
New Jersey:								
Asbury Park.....		7	19	9		1		11.1
Atlantic City.....	54,200	2	101	84	1.55	0		
Bayonne.....	93,100	6	74	66	.71	1	.01	1.5
Belleville.....		7	41	72		0		
Bloomfield.....		7	72	115		0		
Bridgeton.....		6	32	7				
Cartaret.....		3	15	5		0		
Clifton.....		6	80	196		1		.5
Collingswood.....		2	40	19				
Dover.....		3	16	9		0		
East Orange.....	63,300	7	105	164	2.59	0		
Englewood.....		6	34	102				
Garfield.....		5	44	73		1		1.4
Hackensack.....		7	51	42		0		
Harrison.....		7	39	51				
Hoboken.....		5	74	74		0		
Irvington.....		6	114	125		0		
Kearny.....		6	84	180		1		.6
Lodi.....		2	6	33		0		
Long Branch.....		7	18	22		0		
Millville.....		1	74	2		0		
Montclair.....		7	63	109		0		
Morristown.....		7	25	72		0		
New Brunswick.....	39,900	7	40	103	2.58	0		
Nutley.....		1	51	87		0		
Orange.....	36,100	7	58	117	3.24	2	.06	1.7
Passaic.....	70,800	7	152	243	3.43	3	.04	1.2
Perth Amboy.....	49,100	7	115	25	.51	0		
Phillipsburg.....		5	25	106		0		
Plainfield.....		7	85	54		1		1.9
Rahway.....		7	40	58		0		
Ridgefield Park.....		3	33	47		1		2.1
Rutherford.....		3	52	67		1		1.5
Summit.....		7	19	23		0		
West New York.....		7	53	136		1		.7
West Orange.....		7	51	48		0		
New Mexico:								
Albuquerque.....		3	37	62		1		1.6
New York:								
Amsterdam.....	35,900	5	106	23	.64	0		
Auburn.....	135,700	5	38	25	.70	0		
Binghamton.....	73,900	7	233	138	1.87	3	.04	2.2
Cohoes.....		7	27	7		0		
Corning.....		6	14	6		0		
Cortland.....		6	22	10		0		
Dunkirk.....		7	76	5		0		
Elmira.....	49,500	5	53	21	.42	0		
Endicott.....		3	63	6		0		
Freeport.....		2	20	32		0		
Geneva.....		6	11	34		0		
Gloversville.....		7	25	20		0		
Hornell.....		7	12	12		0		
Ithaca.....		7	38	9		0		
Jamestown.....	45,100	7	124	118	2.62	0		
Johnstown.....		4	19	46		1		2.2
Kingston.....		6	38	79		0		
Lackawanna.....		6	62	32		0		
Little Falls.....		7	12	1		0		
Lockport.....		7	58	12		0		
Middletown.....		6	32	22		1		4.5
Mount Ve non.....	53,300	7	87	347	6.51	0		
New Rochelle.....	47,300	6	65	173	3.66	0		
Newburgh.....	30,400	7	54	20	.66	0		
Niagara Falls.....	66,600	7	145	265	3.98	1	.02	.4

1 State census, 1925.

SCARLET FEVER—Continued

City	Estimated population, July 1, 1927	Estimated expectancy		1927				
		Number of years	Cases	Cases reported	Cases per 1,000 inhabitants	Deaths registered	Deaths per 1,000 inhabitants	Fatalities per 100 cases
New York—Continued.								
North Tonawanda.....		7	90	17				
Olean.....		7	52	45		1		2.
Ossining.....		3	65	19		0		
Peekskill.....		6	30	51		0		
Poughkeepsie.....	35,900	7	48	26	0.72	0		
Rome.....		7	104	30		0		
Saratoga Springs.....		7	43	15		0		
Schenectady.....	93,200	7	204	63	.68	0		
Troy.....	72,300	7	50	124	1.72	1	0.01	.8
Watertown.....	33,400	7	83	71	2.13	0		
Watervliet.....		5	13	17				
White Plains.....		7	42	81		0		
North Carolina:								
Asheville.....		7	42	69		0		
Durham.....	45,700	1	36	52	1.14	0		
Gastonia.....				6		0		
Greensboro.....	50,300	4	60	52	1.03	0		
Raleigh.....		7	52	74		1		1.4
Rocky Mount.....		5	20	21		0		
Wilmington.....	38,400	7	40	38	.90	0		
Wilson.....				30		0		
Winston-Salem.....	77,100	6	87	114	1.48	0		
Ohio:								
Alliance.....		2	46	16		0		
Ashland.....		1	102	18		0		
Ashtabula.....		7	47	34		0		
Barberton.....		7	29	135		0		
Bellefontaine.....		1	43	43		2		4.7
Bucyrus.....		7	29	13		0		
Cambridge.....		5	28	9		0		
Campbell.....		6	29	5		0		
Chillicothe.....		7	30	21		0		
Cleveland Heights.....		5	119	149		0		
Conneaut.....		3	19	22		0		
Coshocton.....		5	19	47		0		
Cuyahoga Falls.....		6	19	104		1		1.0
East Cleveland.....		7	70	57		0		
East Liverpool.....		5	46	32		1		3.1
Elyria.....		7	36	22		0		
Findlay.....		7	28	85		0		
Hamilton.....	43,800	7	57	89	2.03	0		
Kenmore.....		6	47	144		0		
Lakewood.....	62,200	4	116	93	1.50	0		
Lancaster.....		5	19	20		0		
Lima.....	48,700	7	68	107	2.20	1	.02	.9
Lorain.....	44,000	7	145	80	1.82	0		
Mansfield.....		7	41	78		1		1.3
Marion.....		5	23	34		0		
Martins Ferry.....		7	35	24		1		4.2
Middletown.....		7	36	147		0		
Newark.....		6	58	150		0		
New Philadelphia.....		4	28	3		0		
Niles.....		6	54	20		0		
Norwood.....		7	40	74		0		
Piqua.....		7	17	20		0		
Salem.....		7	61	39		1		2.6
Sandusky.....		7	71	18		0		
Springfield.....	71,600	7	188	71	.90	1	.01	1.4
Steubenville.....		7	42	136		0		
Tiffin.....		2	30	10		0		
Warren.....		5	75	232		3		1.3
Zanesville.....		7	83	34		0		
Oklahoma:								
Bartlesville.....		2	16	74		0		
Sapulpa.....		2	11	15		0		
Oregon:								
Salem.....		2	17	18		1		5.6
Pennsylvania:								
Altoona.....	67,800	7	76	394	5.81	9	.13	2.3
Beaver Falls.....		6	26	23		0		
Bethlehem.....	66,000	6	128	136	2.06	0		
Braddock.....		7	32	20		0		
Bradford.....		6	20	10		0		
Butler.....		7	87	55		0		

SCARLET FEVER—Continued

City	Estimated population, July 1, 1927	Estimated expectancy		1927				
		Number of years	Cases	Cases reported	Cases per 1,000 inhabitants	Deaths registered	Deaths per 1,000 inhabitants	Fatalities per 100 cases
Pennsylvania—Continued.								
Canonsburg		5	46	6		0		
Carbondale		7	12	19		1		5.3
Carlisle		7	21	37		0		
Carnegie		6	25	10		0		
Chambersburg		7	52	74		1		1.4
Charleroi		7	25	15		0		
Clairton		4	60	165		2		1.2
Coatesville		7	22	7		0		
Columbia		2	9	7				
Connellsville		7	57	15		0		
Dickson		2	3	21		0		
Donora		6	11	10		0		
Duquesne		4	43	31		1		3.2
Easton	37,900	6	35	128	3.38	0		
Ellwood City		1	13	23		0		
Farrell		6	57	15		0		
Greensburg		3	76	24				
Harrisburg	85,700	7	193	86	1.00	2	0.02	2.3
Hazleton	37,500	7	22	47	1.25	1	.03	2.1
Homestead		7	29	16				
Jeanette		7	43	25		0		
Kingston		4	23	77		2		2.6
Lancaster	57,700	7	133	406	7.04	4	.07	1.0
Lansford		3	1	61				
Lebanon		1	57	10				
Lewistown		3	51	19		1		5.3
McKeesport	49,900	7	36	76	1.52	2	.04	2.6
Mahanoy City		1	5	4				
Monessen		7	28	12		0		
New Castle	51,600	7	107	21	.41			
Norristown	35,800	7	36	20	.56	0		
North Braddock		7	32	23		0		
Oil City		7	59	88		1		1.1
Phoenixville		4	7	70				
Plymouth		6	10	6				
Sharon		6	54	13		0		
Steelton		6	33	13				
Swissvale		7	69	30		0		
Warren		6	40	131		0		
Washington		6	66	33		0		
West Chester		7	15	14		1		7.1
Williamsport	43,600	3	99	47	1.08			
Windber		2	10	65		0		
Woodlawn		7	14	33		1		3.0
York	49,600	6	97	76	1.53	1	.02	1.3
Rhode Island:								
Central Falls		5	15	23				
Cranston	36,600	7	38	115	3.14	1	.03	.9
Newport		7	33	46		0		
Westerly				9				
Woonsocket	52,300	3	36	105	2.01	1	.02	1.0
South Carolina:								
Anderson		4	9	8		0		
Charleston	75,000	3	22	31	.41	0		
Columbia	50,000	6	24	27	.54	0		
Greenville		6	32	35		0		
Spartanburg		4	25	25		0		
Sumter		3	3	5		0		
South Dakota:								
Aberdeen		6	94	90				
Sioux Falls		7	105	140		2		1.4
Watertown				55				
Texas:								
Amarillo		6	47	83		2		2.4
Austin	38,800	4	12	41	1.06	0		
Cleburne		5	3	30		0		
Galveston	49,900	7	10	36	.72	0		
Orange		2	4	7		0		
San Angelo				16				
Temple		1	2	5				
Texarkana		6	10	12		0		

* Includes 1 hospital nonresident.

SCARLET FEVER—Continued

City	Estimated population, July 1, 1927	Estimated expectancy		1927				
		Number of years	Cases	Cases reported	Cases per 1,000 inhabitants	Deaths registered	Deaths per 1,000 inhabitants	Fatalities per 100 cases
Texas—Continued.								
Tyler		7	6	7		0		
Waco	45,700	7	21	79	1.73	0		
Utah:								
Ogden	38,300	7	22	348	9.09			
Provo		4	11	9		1		11.1
Vermont:								
Barre		7	34	7		0		
Bennington		3	12	23		0		
Virginia:								
Alexandria		7	14	15		0		
Charlottesville		6	14	35		0		
Danville		7	30	35		0		
Lynchburg	38,600	6	33	63	1.63	1	0.03	1.6
Newport News	51,700	7	29	34	.66	0		
Petersburg	37,100	7	30	10	.27	0		
Portsmouth	60,700	7	47	43	.71	0		
Roanoke	63,200	6	85	132	2.09	2	.03	1.5
Suffolk		1	4	3		0		
Washington:								
Aberdeen		7	10	40		1		2.5
Yakima		7	31	41		0		
West Virginia:								
Bluefield		4	77	61		2		3.3
Charleston	53,400	7	51	108	2.02	0		
Clarksburg		6	56	51		0		
Fairmont		7	36	65		0		
Huntington	66,900	4	75	132	1.97			
Wheeling		7	159	86		0		
Wisconsin:								
Beloit		7	94	56		0		
Eau Claire		7	95	264		1		.4
Fond du Lac		7	40	48		0		
Green Bay	35,500	7	65	23	.65	0		
Janesville		7	29	168		2		1.2
Kenosha	54,600	7	82	279	5.11	3	.05	1.1
La Crosse	30,400	7	87	77	2.53	0		
Madison	48,800	7	151	289	5.92	2	.04	.7
Manitowoc		5	24	9		0		
Oshkosh	33,200	7	46	43	1.30	1	.03	2.3
Racine	71,300	7	371	176	2.47	1	.01	.6
Sheboygan	34,500	6	100	68	1.97	1	.03	1.5
Stevens Point				1		0		
Superior		6	118	231		0		
Waukesha		3	37	39		0		
Wausau		7	103	72		0		
West Allis		7	30	40		0		
Wyoming:								
Casper		1	142	112		1		.9
Cheyenne		1	14	41		0		

SEPTIC SORE THROAT

City	Estimated population, July 1, 1927	Cases reported, 1927	Cases per 1,000 inhabitants	Deaths registered, 1927	Deaths per 1,000 inhabitants	Cases reported for each death registered
California:						
Sacramento	74,600			4	0.05	
Colorado:						
Colorado Springs		1		0		
Connecticut:						
Fairfield		1				
New Britain	71,200	1	0.01	0		
New London		2		0		
Shelton		4				
Stratford		1		1		1.0
Georgia:						
Athens						

SEPTIC SORE THROAT—Continued

City	Estimated population, July 1, 1927	Cases reported, 1927	Cases per 1,000 inhabitants	Deaths registered, 1927	Deaths per 1,000 inhabitants	Cases reported for each death registered
Illinois:						
Blue Island.....		1		0		
Chicago Heights.....				1		
Cicero.....	68,500	1	0.01	0		
Danville.....	38,200	2	.05	0		
Peoria.....	83,500	1		1	0.01	
Rockford.....	80,900	3	.04	3	.04	1.0
Urbana.....		1		0		
Indiana:						
Richmond.....				1		
Iowa:						
Cedar Rapids.....	54,100			1	.02	
Kansas:						
Coffeyville.....		80		0		
Topeka.....	61,900	1	.02	0		
Maine:						
Bath.....		1		0		
Portland.....	77,500			4	.05	
Waterville.....		3		0		
Massachusetts:						
Arlington.....		1		0		
Beverly.....		3		1		3.0
Brockton.....	65,300	1	.02	1	.02	1.0
Chelsea.....	49,000	1	.02	0		
Everett.....	42,900	2	.05	1	.02	2.0
Framingham.....		1		0		
Greenfield.....		1		0		
Leominster.....		1		0		
Medford.....	51,300	2	.04	0		
Northampton.....		1		0		
Northbridge.....		4		0		
Quincy.....	65,300	2	.03	0		
Taunton.....	40,200	1	.02	0		
Wakefield.....		1		0		
Webster.....		1				
Michigan:						
Ann Arbor.....		9		0		
Jackson.....	61,700			1	.02	
Port Huron.....		87		0		
Sault Ste. Marie.....		1		0		
Missouri:						
Independence.....				1		
Springfield.....	51,200	2	.04			
New Hampshire:						
Dover.....				1		
Laconia.....		58		0		
Manchester.....	84,800			1	.01	
New Jersey:						
Belleville.....		4		0		
Hackensack.....				3		
Montclair.....		2		0		
Nutley.....		1		0		
Orange.....	36,100	1	.03	0		
New York:						
Amsterdam.....	35,900	4	.11	0		
Binghamton.....	73,900	4	.05	0		
Cohoes.....		4		0		
Elmira.....	49,500	2	.04	2	.04	1.0
Hornell.....		2		1		2.0
Ithaca.....		1		1		1.0
Kingston.....		2		1		2.0
Lackawanna.....		9		0		
Mount Vernon.....	53,300	1	.02	0		
New Rochelle.....	47,300	3	.06	0		
Peekskill.....		1		0		
Poughkeepsie.....	35,900	1	.03	0		
Schenectady.....	93,200	6	.06	2	.02	3.0
Ohio:						
Cuyahoga Falls.....		1		0		
East Cleveland.....		2		0		
Kenmore.....		1		0		
Pennsylvania:						
West Chester.....		1		1		1.0
Rhode Island:						
Cranston.....	36,600	6	.16	0		
Woonsocket.....	52,300			1	.02	
South Carolina:						
Charleston.....	75,000			8	.11	

1 State census, 1925.

SEPTIC SORE THROAT—Continued

City	Estimated population, July 1, 1927	Cases reported, 1927	Cases per 1,000 inhabitants	Deaths registered, 1927	Deaths per 1,000 inhabitants	Cases reported for each death registered
Texas:						
Cleburne.....		2		2		1.0
Galveston.....	49,900			1	0.02	
Waco.....	45,700			2	.04	
Virginia:						
Lynchburg.....	38,600			1	.03	
Suffolk.....		3		1		3.0
Washington:						
Everett.....				1		
Wisconsin:						
La Crosse.....	30,400	1	0.03	1	.03	1.0
Madison.....	48,800			1	.02	
Stevens Point.....		1		1		1.0
Wyoming:						
Cheyenne.....		2		0		

SMALLPOX

City	Estimated population, July 1, 1927	Estimated expectancy		1927				
		Number of years	Cases	Cases reported	Cases per 1,000 inhabitants	Deaths registered	Deaths per 1,000 inhabitants	Fatalities per 100 cases
Alabama:								
Bessemer.....		2	11	8		1		12.5
Gadsden.....		1	24	1		0		
Mobile.....	67,700	7	15	6	0.09	0		
Tuscaloosa.....				22		0		
Arizona:								
Tucson.....		5	19	2		0		
Arkansas:								
Fort Smith.....		5	3	1		0		
Helena.....				2				
Hot Springs.....		4	1	1		0		
Little Rock.....	77,500	7	5	5	.06	0		
California:								
Berkeley.....	69,400	6	27	13	.19	0		
Chico.....		3	2	2		0		
Fresno.....	62,200	5	9	1	.02	0		
Glendale.....		7	11	2		0		
Pasadena.....	60,500	7	16	2	.03	0		
Riverside.....		6	17	2		0		
Sacramento.....	74,600	7	88	88	1.18	0		
San Jose.....	44,800	7	44	5	.11	0		
Stockton.....	49,800	4	19	8	.16	0		
Colorado:								
Colorado Springs.....		7	8	44		0		
Greeley.....		4	2	7		0		
Pueblo.....	44,100	6	1	18	.41	0		
Florida:								
Orlando.....		1	9	87		1		1.1
West Palm Beach.....		3	1	7		0		
Georgia:								
Athens.....		5	19	34		1		2.9
Augusta.....	56,200	5	73	149	2.65	1	0.02	.7
Brunswick.....		7	3	11		0		
Macon.....	60,100	7	31	172	2.86	0		
Savannah.....	99,700	7	22	96	.96	0		
Waycross.....		1	41	8		0		
Idaho:								
Boise.....		7	48	7		0		
Pocatello.....		6	10	76		0		
Illinois:								
Alton.....		5	4	1		0		
Aurora.....	46,500	6	7	104	2.24	0		
Berwyn.....		5	0	1		0		
Bloomington.....		7	3	15		0		
Champaign.....		7	4	11		0		
Danville.....	38,200	7	6	9	.24	0		
Decatur.....	56,000	4	6	10	.18	0		

SMALLPOX—Continued

City	Estimated population, July 1, 1927	Estimated expectancy		1927				
		Number of years	Cases	Cases reported	Cases per 1,000 inhabitants	Deaths registered	Deaths per 1,000 inhabitants	Fatalities per 100 cases
Illinois—Continued.								
Elgin.....	35,000	7	1	4	0.11	0		
Evanston.....	46,400	7	14	10	.22	0		
Joliet.....	41,500	5	3	2	.05	0		
Kewanee.....		5	1	2				
Maywood.....		7	1	1		0		
Moline.....	35,100	7	6	5	.14	0		
Quincy.....	39,500	7	7	4	.10	0		
Springfield.....	66,400	7	3	9	.14	0		
Urbana.....		5	2	2		0		
Indiana:								
Anderson.....		7	41	251		0		
Connersville.....		3	2	21		0		
Elkhart.....		6	19	58		0		
Elwood.....		7	15	46		0		
Evansville.....	96,600	1	3	11	.11	0		
Gary.....	85,200	5	55	30	.35	0		
Huntington.....		5	21	4		0		
Kokomo.....	39,100	7	20	75	1.92	0		
La Fayette.....		7	6	34		0		
La Porte.....		5	2	82		0		
Logansport.....		7	23	7		0		
Michigan City.....		6	5	1		0		
Mishawaka.....		7	14	32		0		
Muncie.....	45,800	7	15	229	5.00	0		
New Albany.....		6	4	42		0		
New Castle.....		6	3	2		0		
Peru.....		2	53	37		0		
Richmond.....		7	10	25		0		
South Bend.....	84,200	5	43	23	.27	0		
Terre Haute.....	72,700	5	37	63	.87	0		
Vincennes.....				3		0		
Wabash.....		2	25	19		0		
Iowa:								
Boone.....		4	23	150		0		
Burlington.....		7	7	3		0		
Cedar Rapids.....	54,100	7	21	4	.07	0		
Davenport.....	152,500	3	40	4	.08			
Muscatine.....		6	3	2		0		
Waterloo.....	37,000	3	18	1	.03			
Kansas:								
Arkansas City.....				7		0		
Coffeyville.....		7	5	3		0		
Emporia.....		4	6	9		0		
Fort Scott.....		7	1	1		0		
Hutchinson.....		6	9	5		0		
Lawrence.....		7	5	11		0		
Leavenworth.....		7	1	11				
Parsons.....		6	6	1		0		
Salina.....				1				
Topeka.....	61,900	7	13	153	2.47	1	0.02	0.7
Kentucky:								
Covington.....	58,700	5	11	6	.10	0		
Paducah.....		7	4	2		0		
Louisiana:								
Baton Rouge.....		5	5	12		1		8.3
Lake Charles.....		4	4	1		0		
Monroe.....		1	19	14				
Shreveport.....	78,000	3	51	21	.27	0		
Massachusetts:								
Pittsfield.....	49,100	7	0	1	.02	0		
Michigan:								
Ann Arbor.....		7	15	9		0		
Bay City.....	49,400	7	12	4	.08	0		
Benton Harbor.....		7	2	3		0		
Highland Park.....	81,700	7	62	2	.02	0		
Jackson.....	61,700	7	36	7	.11	0		
Kalamazoo.....	55,500	7	17	47	.85	0		
Lansing.....	75,600	7	32	5	.07	0		
Marquette.....		6	2	2		0		
Muskegon.....	45,500	7	3	28	.62	0		
Pontiac.....	54,000	7	20	3	.06	0		
Port Huron.....		7	4	2		0		
Saginaw.....	74,400	7	11	24	.32	0		
Wyandotte.....		2	0	2		0		

1 State census, 1925.

SMALLPOX—Continued

City	Estimated population, July 1, 1927	Estimated expectancy		1927				
		Number of years	Cases	Cases reported	Cases per 1,000 inhabitants	Deaths registered	Deaths per 1,000 inhabitants	Fatalities per 100 cases
Minnesota:								
Faribault		3	4	4		0		
Mankato		6	19	3		0		
Mississippi:								
Jackson		4	4	3		0		
Missouri:								
Independence		3	3	116		1		0.9
Joplin		6	3	9				
St. Joseph	78,500	7	3	618	7.87	2	0.03	.3
Montana:								
Anaconda		6	2	2		0		
Billings		1	1	12		0		
Butte	43,300	6	17	14	.32	0		
Great Falls		6	73	20		0		
Helena		5	13	21		0		
Nebraska:								
Grand Island		5	1	3		0		
Lincoln	69,900	7	25	8	.11	0		
North Platte		5	5	2		0		
Nevada:								
Reno		7	11	6		0		
New Jersey:								
Bridgeton		6	0	1				
Morristown		7	0	14		0		
New York:								
Newburgh	30,400	7	0	1	.03	0		
Niagara Falls	66,600	7	4	3	.05	0		
Olean		7	0	1		0		
Watertown	33,400	7	1	71	2.13	0		
North Carolina:								
Asheville		7	7	212		3		1.4
Durham	45,700	1	11	22	.48	0		
Gastonia				13		0		
Greensboro	50,300	5	18	18	.36	0		
Raleigh		7	21	3		0		
Rocky Mount		5	11	9		0		
Wilmington	38,400	7	6	1	.03	0		
Wilson				32		0		
Winston-Salem	77,100	6	99	19	.25	0		
Ohio:								
Bellefontaine		1	0	5		0		
Bucyrus		7	5	1		0		
Campbell		6	8	3		0		
Chillicothe		7	19	38		0		
Coshocton		5	3	3		0		
Cuyahoga Falls		6	1	2		0		
East Cleveland		7	1	3		0		
East Liverpool		5	11	2		0		
Elyria		7	6	1		0		
Findlay		7	3	4		0		
Hamilton	43,800	7	66	6	.14	0		
Kenmore		6	2	4		0		
Lancaster		5	9	2		0		
Lima	48,700	7	8	3	.06	0		
Marion		5	3	6		0		
Middletown		7	24	13		0		
New Philadelphia		2	2	6		0		
Niles		6	3	2		1		50.0
Norwood		7	3	5		0		
Piqua		7	2	5		0		
Springfield	71,600	7	17	13	.18	0		
Steubenville		7	9	1		0		
Warren		5	11	5		0		
Zanesville		7	5	1		0		
Oklahoma:								
Bartlesville		2	10	13		0		
Sapulpa		2	6	17		0		
Oregon:								
Salem		2	30	23		0		
Pennsylvania:								
Bradford		6	0	6		0		
Clairton		4	1	1		0		
Donora		6	0	1		0		
Sharon		6	2	6		0		

SMALLPOX—Continued

City	Estimated population, July 1, 1927	Estimated expectancy		1927				
		Number of years	Cases	Cases reported	Cases per 1,000 inhabitants	Deaths registered	Deaths per 1,000 inhabitants	Fatalities per 100 cases
Rhode Island:								
Newport		7	0	1		0		
South Carolina:								
Charleston	75,000	3	4	16	0.21	1	0.01	6.2
Columbia	50,000	6	15	20	.40	0		
Greenville		6	32	8		0		
Spartanburg		4	13	13		0		
Sumter		3	1	4		0		
South Dakota:								
Watertown				1				
Texas:								
Amarillo		6	12	6		0		
Austin	38,800	4	2	14	.36	0		
Cleburne		5	10	26		0		
Galveston	49,900	7	5	2	.04	0		
San Angelo				52				
Temple		1	1	1				
Texarkana		6	8	2		0		
Waco	45,700	5	14	9	.20	0		
Utah:								
Ogden	38,300	7	19	310	8.09			
Provo		4	3	6		0		
Virginia:								
Danville		7	13	51		0		
Petersburg	37,100	7	2	1	.03	0		
Roanoke	63,200	6	35	83	1.31	0		
Washington:								
Aberdeen		7	63	7		0		
Yakima		7	27	19		0		
West Virginia:								
Bluefield		3	31	38		0		
Charleston	53,400	7	21	120	1.37	0		
Clarksburg		6	1	2		0		
Huntington	66,900	4	6	16	.24			
Wisconsin:								
Beloit		7	4	1		0		
Fond du Lac		7	4	6		0		
Green Bay	35,500	7	5	116	3.27	1	.03	.9
Janesville		7	6	4		0		
Kenosha	54,600	7	100	7	.13	0		
Madison	48,800	7	10	1	.02	0		
Manitowish		5	2	6		0		
Oshkosh	33,200	7	32	7	.21	0		
Racine	71,300	7	30	1	.01	0		
Waukesha		3	0	1		0		
Wyoming:								
Cheyenne		2	1	6		0		

* Includes 2 nonresidents.

TUBERCULOSIS (ALL FORMS)

City	Estimated population, July 1, 1927	Cases reported, 1927	Cases per 1,000 inhabitants	Deaths registered, 1927	Deaths per 1,000 inhabitants	Cases reported for each death registered
Alabama:						
Bessemer		38		33		1.2
Florence				16		
Gadsden				24		
Mobile	67,700			67	0.99	
Selma		65		43		1.5
Tuscaloosa		16		10		1.6
Arizona:						
Tucson				371		
Arkansas:						
Fort Smith				35		
Helena		12				
Little Rock	77,500			96	1.24	

TUBERCULOSIS (ALL FORMS)—Continued

City	Estimated population, July 1, 1927	Cases reported, 1927	Cases per 1,000 inhabitants	Deaths registered, 1927	Deaths per 1,000 inhabitants	Cases reported for each death registered
California:						
Alhambra		43		13		3.3
Berkeley	69,400	71	1.02			
Chico				6		
Eureka				27		
Fresno	62,200			41	0.66	
Glendale				72		
Pasadena	60,500	139	2.30	56	.93	2.5
Pomona				13		
Richmond				3		
Riverside				51		
Sacramento	74,600	144	1.93	118	1.58	1.2
San Jose	44,800			31	.69	
Santa Ana				16		
Santa Barbara		40		20		2.0
Stockton	49,800	66	1.33	40	.80	1.6
Vallejo				11		
Colorado:						
Boulder		103		28		3.7
Colorado Springs				148		
Greeley				16		
Pueblo	44,100			45	1.02	
Trinidad				18		
Connecticut:						
Bristol		24		8		3.0
Greenwich		32		12		2.7
Manchester		11		9		1.2
New Britain	71,200	104	1.46	42	.59	2.5
New London		35		13		4.0
Norwich		24		6		1.1
Stamford Town		20		18		
Florida:						
Orlando				37		
West Palm Beach		17		16		1.1
Georgia:						
Athens		61		34		1.8
Augusta	56,200			71	1.26	
Brunswick				18		
Columbus	45,800			51	1.11	
Macon	60,100	276	4.59	83	1.38	3.3
Savannah	99,700	228	2.29	122	1.22	1.9
Illinois:						
Alton				9		
Aurora	46,500	106	2.28	21	.45	5.0
Bloomington		55		22		2.5
Champaign		31		6		5.2
Chicago Heights		14		11		1.3
Cicero	68,500	85	1.24	22	.32	3.9
Danville	38,200	38	.99	16	.42	2.4
Decatur	56,000	168	3.00	46	.82	3.7
East Moline		22				
East St. Louis	73,100			52	.71	
Evanston	46,400	34	.73	8	.17	4.2
Forest Park				4		
Freeport				7		
Galesburg				7		
Jacksonville		64		149		1.3
Joliet	41,500	72	1.73	14	.34	5.1
La Salle		12		6		2.0
Maywood		23				
Moline	35,100	103	2.93	4	.11	25.7
Mount Vernon				8		
Murphysboro				8		
Oak Park	55,600	54	.97	15	.27	3.6
Pekin				2		
Peoria	83,500			40	.48	
Quincy	39,500	81	2.05	11	.28	7.4
Rockford	80,900	215	2.66	49	.61	4.4
Rock Island	41,900	30	.72	10	.24	3.0
Springfield	66,400	36	.54	23	.35	1.6
Urbana		12				
Waukegan		30				
Indiana:						
Anderson				15		
Connersville				7		
East Chicago	49,100	79	1.61			
Elkhart				11		
Elwood				6		

¹ Includes 33 deaths at State hospital.

TUBERCULOSIS (ALL FORMS)—Continued

City	Estimated population, July 1, 1927	Cases reported, 1927	Cases per 1,000 inhabitants	Deaths registered, 1927	Deaths per 1,000 inhabitants	Cases reported for each death registered
Indiana—Continued.						
Evansville.....	96,600	71	0.73	68	0.70	1.0
Gary.....	85,200	89	1.04	60	.70	1.5
La Fayette.....				16		
Logansport.....				2		
Michigan City.....				13		
Mishawaka.....		63		11		5.7
Muncie.....	45,800			24	.52	
New Albany.....				18		
New Castle.....				7		
Richmond.....				15		
South Bend.....	84,200			45	.53	
Terre Haute.....	72,700			46	.63	
Vincennes.....				16		
Whiting.....		14				
Iowa:						
Boone.....				6		
Burlington.....		19		3		6.3
Cedar Rapids.....	54,100			19	.35	
Clinton.....		5				
Dubuque.....	41,900	7	.17			
Muscatine.....		8		4		2.0
Kansas:						
Arkansas City.....				9		
Chanute.....				11		
Coffeyville.....				14		
Emporia.....		22		5		4.4
Lawrence.....		3		3		
Leavenworth.....		16		5		3.2
Parsons.....		5		5		
Topeka.....	61,900	81	1.31	31	.50	2.6
Kentucky:						
Covington.....	58,700			41	.70	
Paducah.....				49		
Louisiana:						
Baton Rouge.....				15		
Lake Charles.....				14		
Shreveport.....	78,000			71	.91	
Maine:						
Auburn.....		9		8		1.1
Bangor.....		30		17		1.8
Bath.....				8		
Lewiston.....	36,100	33	.91	25	.69	1.3
Portland.....	77,500	50	.65	38	.49	1.3
Waterville.....				9		
Westbrook.....		4				
Maryland:						
Cumberland.....		72		12		6.0
Frederick.....				8		
Massachusetts:						
Amesbury.....		10		3		3.3
Arlington.....		48		13		3.7
Attleboro.....		90		38		2.4
Beverly.....		21		8		2.6
Braintree.....				41		
Brockton.....	65,300	86	1.32	20	.31	4.3
Brookline.....	44,800	46	1.03	19	.42	2.4
Chelsea.....	49,000			33	.67	
Chicopee.....	44,300	42	.95	36	.81	1.2
Clinton.....		13		2		6.5
Danvers.....		25				
Easthampton.....		8		4		2.0
Everett.....	42,900	66	1.54	26	.61	2.5
Framingham.....		33		10		3.3
Gardner.....		34		10		3.4
Gloucester.....				16		
Greenfield.....		6				
Haverhill.....	49,200	64	1.30	19	.39	3.4
Lawrence.....	93,500	89	.95	35	.37	2.5
Leominster.....		27		8		3.4
Malden.....	52,900	52	.98	18	.34	2.9
Medford.....	51,300	66	1.29			
Melrose.....		33		4		8.2
Methuen.....		34		9		3.8
Milford.....				8		
Milton.....		11		6		1.8
Natick.....		10				
Newburyport.....		16		11		1.5

* State census, 1925.

TUBERCULOSIS (ALL FORMS)—Continued

City	Estimated population, July 1, 1927	Cases reported, 1927	Cases per 1,000 inhabitants	Deaths registered, 1927	Deaths per 1,000 inhabitants	Cases reported for each death registered
Massachusetts—Continued.						
Newton	56,000	51	0.91	21	0.37	2.4
North Adams		22		10		2.2
Northampton		56				
Northbridge				10		
Palmer		8				
Peabody		22		7		3.1
Pittsfield	49,100	45	.92	33	.67	1.4
Plymouth		6				
Quincy	65,300	73	1.12	37	.57	2.0
Revere	35,200	63	1.79	15	.43	4.2
Salem	42,900	54	1.26	14	.33	3.9
Saugus		18		7		2.6
Southbridge		14				
Taunton	40,200	50	1.24			
Waltham	36,400	52	1.43	17	.47	3.1
Watertown		30				
Webster		14		8		1.7
Westfield		13		11		1.2
Weymouth		17				
Winchester		5				
Woburn				12		
Michigan:						
Adrian				8		
Ann Arbor		106				
Bay City	49,400	33	.67	27	.55	1.2
Benton Harbor		5		3		1.7
Hamtramck	93,800	82	.87	25	.27	3.3
Highland Park	81,700	36	.44	14	.17	2.6
Ironwood		9		6		1.5
Jackson	61,700			34	.55	
Kalamazoo	55,500	61	1.10	19	.34	3.2
Lansing	75,600	45	.60	18	.24	2.5
Marquette		16		10		1.6
Mount Clemens				4		
Muskegon	45,500			9	.20	
Pontiac	54,000	104	1.93	23	.43	4.5
Port Huron		26		24		1.1
River Rouge		14				
Wyandotte		27		8		3.4
Minnesota:						
Albert Lea				7		
Austin		1				
Brainerd				3		
Faribault				20		
Hibbing				4		
St. Cloud				16		
Virginia		13				
Winona				15		
Mississippi:						
Jackson		149				
Missouri:						
Cape Girardeau				21		
Hannibal				5		
Independence				12		
Joplin		3				
Springfield	51,200	10	.20			
Montana:						
Anaconda				10		
Billings				9		
Butte	43,300	57	1.32	47	1.09	1.2
Great Falls		23		11		2.1
Nebraska:						
Grand Island				7		
New Hampshire:						
Berlin		34		13		2.6
Claremont		52		9		5.8
Concord				26		
Dover		2				
Keene		4		3		1.3
Laconia		9		3		3.0
Manchester	84,800			47	.55	
Nashua				19		
New Jersey:						
Asbury Park		25		16		1.6
Atlantic City	54,200	76	1.40	9	.17	8.4
Bayonne	93,100	112	1.20	33	.35	3.4
Belleville				17		
Bloomfield		29		9		3.2

* Includes 31 nonresidents.

TUBERCULOSIS (ALL FORMS)—Continued

City	Estimated population, July 1, 1927	Cases reported, 1927	Cases per 1,000 inhabitants	Deaths registered, 1927	Deaths per 1,000 inhabitants	Cases reported for each death registered
New Jersey—Continued.						
Bridgeton		7				
Clifton		47				
Collingswood		11		4		2.7
Dover		14		4		3.5
East Orange	63,300	55	0.87			
Englewood		22		7		3.1
Garfield		67		22		3.0
Hackensack		36		9		4.0
Hoboken		84				
Irvington		50		20		2.5
Kearny		39		7		5.6
Lodi		23		6		3.8
Long Branch		26				
Millville		27		10		2.7
Morristown		22		2		11.0
New Brunswick	39,900	53	1.33	15	0.38	3.5
Nutley		9		8		1.1
Orange	36,100	49	1.36	33	.91	1.5
Passaic	70,800	61	.86	20	.28	3.1
Perth Amboy	49,100	29	.59	26	.53	1.1
Phillipsburg		5		1		5.0
Plainfield		39		13		3.0
Ridgefield Park		5		3		1.7
Rutherford		8		5		1.6
West New York		33		12		2.7
West Orange		20				
New Mexico:						
Albuquerque				205		
New York:						
Amsterdam	35,900	61	1.70	21	.58	2.9
Auburn	² 35,700	31	.87	26	.73	1.2
Binghamton	73,900	98	1.33	31	.42	3.2
Cohoes		38		10		3.8
Cortland		12		5		2.4
Dunkirk		28		8		3.5
Elmira	49,500	53	1.07	26	.53	2.0
Endicott				5		
Freeport		44		5		8.8
Geneva		23		8		2.9
Gloversville		13				
Hornell		13				
Ithaca		38		9		4.2
Jamestown	45,100	36	.80	23	.51	1.6
Johnstown		86				
Kingston		66		38		1.7
Lackawanna		61		2		30.5
Little Falls		19		3		6.3
Lockport		26				
Mount Vernon	53,300	31	.58	12	.23	2.6
New Rochelle	47,300	16		16	.34	
Newburgh	30,400	47	1.55	46	1.51	1.0
Niagara Falls	66,600	95	1.43	24	.36	4.0
North Tonawanda		23				
Olean		37		10		3.7
Ossining		10		3		3.3
Peekskill		25		16		1.6
Poughkeepsie	35,900	44	1.23			
Rome				38		
Saratoga Springs		36		9		4.0
Schenectady	93,200	150	1.61	38	.41	3.9
Troy	72,300	204	2.82	40	.55	5.1
Watertown	33,400	38	1.14	17	.51	2.2
Watervliet		23		6		3.8
White Plains		39		17		2.3
North Carolina:						
Asheville		⁴ 450		⁴ 151		⁴ 3.0
Durham	45,700	⁴ 114	⁴ 2.49	⁴ 59	⁴ 1.29	⁴ 9.9
Greensboro	50,300	159	3.16	35	.70	4.5
Raleigh				50		
Rocky Mount				18		
Wilmington	38,400			⁵ 22	⁵ .57	
Winston-Salem	77,100	153	1.98	80	1.04	1.9
Ohio:						
Ashtabula		36		11		3.3
Barberton		70		13		5.4
Bucyrus				7		
Cambridge				4		

² State census, 1925.⁴ Includes nonresidents.⁵ Includes 3 nonresidents.

TUBERCULOSIS (ALL FORMS)—Continued

City	Estimated population, July 1, 1927	Cases reported, 1927	Cases per 1,000 inhabitants	Deaths registered, 1927	Deaths per 1,000 inhabitants	Cases reported for each death registered
Ohio—Continued.						
Campbell.....		10		5		2.0
Chillicothe.....		8		3		2.7
Cuyahoga Falls.....		27		5		5.4
East Liverpool.....		19		14		1.4
Elyria.....				12		
Findlay.....		18				
Hamilton.....	43,800	82	1.87	44	1.00	1.9
Kenmore.....		39		7		5.6
Lakewood.....	62,200	55	.88	9	.14	6.1
Lancaster.....				15		
Lima.....	48,700			23	.47	
Lorain.....	44,000	56	1.27	24	.55	2.3
Mansfield.....		34		9		3.8
Marion.....		23		17		1.4
Martins Ferry.....		14		7		2.0
Middletown.....		20		20		1.4
Newark.....				15		
Norwood.....		23		10		2.3
Piqua.....				19		
Salem.....				3		
Sandusky.....		28		20		1.4
Springfield.....	71,600	102	1.42	52	.73	2.0
Steubenville.....		48		15		3.2
Tiffin.....				16		
Warren.....		64		10		6.4
Zanesville.....		46		19		2.4
Oregon:						
Salem.....				9		
Pennsylvania:						
Altoona.....	67,800	51	.75	31	.46	1.6
Berwick.....				2		
Bethlehem.....	66,000	32	.48	16	.24	2.0
Braddock.....		17		14		1.2
Bradford.....		4				
Butler.....		11		4		2.7
Canonsburg.....				10		
Carbondale.....				8		
Carnegie.....		4				
Chambersburg.....				7		
Charleroi.....		5		2		2.5
Clairton.....		17		6		2.8
Coatesville.....		15		6		2.5
Columbia.....		12		9		1.3
Connellsville.....				5		
Dickson.....				5		
Donora.....				9		
Easton.....	37,900	29	.77	16	.42	1.8
Ellwood City.....				8		
Farrell.....				12		
Harrisburg.....	85,700	93	1.09	43	.50	2.2
Hazleton.....	37,500	19	.51	4	.11	4.7
Kingston.....		14		8		1.7
Lancaster.....	57,700			39	.68	
Lebanon.....		43				
Lewistown.....				5		
McKeesport.....	49,900	77	1.54	25	.50	3.1
Mahanoy City.....		7				
Nanticoke.....				15		
New Castle.....	51,600	20	.39			
Norristown.....	35,800			15	.42	
North Braddock.....		14		8		1.7
Oil City.....		17		10		1.7
Phoenixville.....				8		
Plymouth.....		11				
Sharon.....				23		
Steelton.....				4		
Swissvale.....		12		2		6.0
Warren.....		86				
Washington.....				15		
West Chester.....		20		14		1.4
Williamsburg.....				1		
Williamsport.....	45,600	20	.46			
Windber.....				3		
Woodlawn.....		25		2		12.5
York.....	40,600			17	.34	

* Includes 4 hospital nonresidents.

TUBERCULOSIS (ALL FORMS)—Continued

City	Estimated population, July 1, 1927	Cases reported, 1927	Cases per 1,000 inhabitants	Deaths registered, 1927	Deaths per 1,000 inhabitants	Cases reported for each death registered
Rhode Island:						
Cranston.....	36,600			8	0.22	
Newport.....				20		
Westerly.....		2				
Woonsocket.....	52,300	48	0.92	30	.57	1.6
South Carolina:						
Anderson.....				22		
Charleston.....	75,000	122	1.63	111	1.48	1.1
Columbia.....	50,000	87	1.74	25	.50	3.5
Sumter.....				18		
South Dakota:						
Watertown.....		3				
Texas:						
Austin.....	38,800			44	1.13	
Beaumont.....	54,400			42	.77	
Cleburne.....		20		15		1.3
Galveston.....	49,900			55	1.10	
Texarkana.....				17		
Tyler.....				11		
Waco.....	45,700			40	.88	
Vermont:						
Barre.....				17		
Virginia:						
Alexandria.....				18		
Charlottesville.....				14		
Danville.....		66		23		2.9
Lynchburg.....	38,600			33	.85	
Newport News.....	51,700			24	.46	
Petersburg.....	37,100	87	2.35	37	1.00	2.4
Portsmouth.....	60,700			45	.74	
Roanoke.....	63,200			42	.66	
Suffolk.....		59		57		1.0
Washington:						
Vancouver.....				7		
West Virginia:						
Bluefield.....				15		
Charleston.....	53,400			49	7.92	
Clarksburg.....				16		
Fairmont.....				16		
Morgantown.....				6		
Wheeling.....		131		44		3.0
Wisconsin:						
Beloit.....				11		
Fond du Lac.....				12		
Green Bay.....	35,500	23	.65	20	.56	1.1
Janesville.....				10		
Kenosha.....	54,600	32	.59	12	.22	2.7
La Crosse.....	30,400			22	.73	
Madison.....	48,800			32	.66	
Racine.....	71,300	102	1.43	28	.39	3.6
Sheboygan.....	34,500	21	.61			
Stevens Point.....				5		
Superior.....				25		
Waukesha.....				10		
Wausau.....		17		10		1.7
Wyoming:						
Casper.....		3		1		3.0
Cheyenne.....		6		3		2.0

⁷ Includes 12 nonresidents.

TUBERCULOSIS (RESPIRATORY SYSTEM)

City	Estimated population, July 1, 1927	Cases reported, 1927	Cases per 1,000 inhabitants	Deaths registered, 1927	Deaths per 1,000 inhabitants	Cases reported for each death registered
Alabama:						
Bessemer.....		35		31		1.1
Florence.....				15		
Gadsden.....		24		19		1.3
Mobile.....	67,700			57	0.84	
Arizona:						
Tucson.....				315		
Arkansas:						
Hot Springs.....		6		3		2.0
Little Rock.....	77,500			86	1.11	

TUBERCULOSIS (RESPIRATORY SYSTEM)—Continued

City	Estimated population, July 1, 1927	Cases reported, 1927	Cases per 1,000 inhabitants	Deaths registered, 1927	Deaths per 1,000 inhabitants	Cases reported for each death registered
California:						
Bakersfield				17		
Berkeley	69,400	68	0.98	18	0.26	3.8
Glendale				65		
Pasadena	60,500			48	.79	
Pomona				11		
Riverside		33				
Sacramento	74,600	136	1.82	99	1.33	1.4
San Jose	44,800	41	.92	24	.54	1.7
Santa Ana		9				
Stockton	49,800			30	.60	
Colorado:						
Colorado Springs				141		
Greeley				13		
Pueblo	44,100			40	.91	
Trinidad				10		
Connecticut:						
Derby				6		
Fairfield		22				
Greenwich		31		11		2.8
New Britain	71,200	78	1.10	34	.48	2.3
New London		31		10		3.1
Shelton		5				
Stamford Town				14		
Stratford				6		
Florida:						
Orlando				35		
Georgia:						
Athens		60		29		2.1
Augusta	56,200			64	1.14	
Savannah	99,700	218	2.19	112	1.12	1.9
Waycross		20		9		2.2
Idaho:						
Pocatello		3		1		3.0
Illinois:						
Aurora	46,500			20	.43	
Berwyn		24		6		4.0
Bloomington				20		
Blue Island		33		14		2.4
Cicero	68,500	81	1.18			
Danville	38,200	32	.84	8	.21	4.0
Decatur	56,000	155	2.77	33	.59	4.7
East Moline		21		2		10.5
Elgin	35,000	36	1.03	12	.34	3.0
Evanston	46,400	31	.67	7	.15	4.4
Forest Park				3		
Freeport		6				
Kewanee		6				
Marion		3		0		
Maywood		20		5		4.0
Murphysboro				7		
Oak Park	55,600	43	.77	10	.18	4.3
Pekin		5				
Rockford	80,900	171	2.11	44	.54	3.9
Springfield	66,400	28	.42	20	.30	1.4
Urbana		10		4		2.5
Indiana:						
Anderson				11		
Connersville				5		
Crawfordsville				8		
Elwood				5		
Huntington				6		
Kokomo	39,100			21	.54	
La Fayette				15		
Michigan City				3		
New Castle				5		
Peru				2		
Terre Haute	72,700			42	.58	
Wabash				6		
Iowa:						
Ottumwa		89		12		7.4
Kansas:						
Coffeyville		29		13		2.2
Eldorado				4		
Fort Scott		10		4		2.5
Lawrence		25		2		12.5
Parsons		15		1		15.0
Salina		8				
Topeka	61,900	71	1.15	28	.45	2.5

TUBERCULOSIS (RESPIRATORY SYSTEM)—Continued

City	Estimated population, July 1, 1927	Cases reported, 1927	Cases per 1,000 inhabitants	Deaths registered, 1927	Deaths per 1,000 inhabitants	Cases reported for each death registered
Kentucky:						
Lexington.....	48,100			81	1.68	
Paducah.....				37		
Louisiana:						
Baton Rouge.....				2		
Lake Charles.....				13		
Monroe.....		2				
Maine:						
Bath.....				4		
Biddeford.....		22		15		1.5
Portland.....	77,500	44	0.57	32	.41	1.4
South Portland.....		1				
Waterville.....				7		
Westbrook.....				7		
Maryland:						
Cumberland.....		67		9		7.4
Frederick.....		36		7		5.1
Massachusetts:						
Adams.....		12		8		1.5
Arlington.....		39		11		3.5
Athol.....		3		0		
Attleboro.....		80		35		2.3
Beverly.....		13		6		2.2
Brockton.....	¹ 65,300	72	1.10	19	.29	3.8
Brookline.....	44,800	33	.74	17	.38	1.9
Chelsea.....	49,000	50	1.02	29	.59	1.7
Chicopee.....	44,300	39	.88	34	.77	1.1
Clinton.....		9		1		9.0
Danvers.....				22		
Easthampton.....		6		2		3.0
Everett.....	42,900	54	1.26	21	.49	2.6
Frammingham.....		29		9		3.2
Gloucester.....				10		
Greenfield.....		5		3		1.7
Haverhill.....	¹ 49,200	52	1.06	14	.28	3.7
Lawrence.....	¹ 93,500	72	.77	30	.32	2.4
Leominster.....		18		6		3.0
Marlboro.....		12		5		2.4
Medford.....	51,300	58	1.13	21	.41	2.8
Melrose.....		19		1		19.0
Methuen.....		25		6		4.2
Milford.....		7		0		
Milton.....		7				
Natick.....		9		2		4.5
Newburyport.....		10		9		1.1
Newton.....	56,000	46	.82	15	.27	3.1
North Adams.....		20		8		2.5
Northampton.....		² 55		¹ 8		6.9
Northbridge.....		9		9		
Norwood.....		9		1		9.0
Peabody.....		17		6		2.8
Pittsfield.....	49,100	30	.61	25	.51	1.2
Plymouth.....		4		1		4.0
Quincy.....	65,300	65	1.00	35	.54	1.9
Salem.....	42,900	41	.96	12	.28	3.4
Southbridge.....		12		2		6.0
Taunton.....	40,200	47	1.17	31	.77	1.5
Wakefield.....		10		5		2.0
Waltham.....	36,400	28	.77	13	.36	2.2
Watertown.....		29				
Weymouth.....		16		4		4.0
Winchester.....		4		3		1.3
Winthrop.....		4		4		2.5
Woburn.....		10		8		
Michigan:						
Adrian.....		12		0		
Ann Arbor.....		100		3		33.3
Bay City.....	49,400	30	.61	24	.49	1.2
Escanaba.....		12		7		1.7
Holland.....		37		4		9.2
Ishpeming.....		10		5		2.0
Jackson.....	61,700			29	.47	
Lansing.....	75,600			13	.17	
Marquette.....		14		8		1.7
Mount Clemens.....		10		0		
River Rouge.....				7		
Saginaw.....	74,400	114	1.53	24	.32	4.7

¹ State census, 1925.² Includes 31 nonresidents.³ Includes 6 nonresidents.

TUBERCULOSIS (RESPIRATORY SYSTEM)—Continued

City	Estimated population, July 1, 1927	Cases reported, 1927	Cases per 1,000 inhabitants	Deaths registered, 1927	Deaths per 1,000 inhabitants	Cases reported for each death registered
Minnesota:						
Albert Lea				4		
Hibbing		3		1		3.0
St. Cloud				12		
Virginia		12		2		6.0
Mississippi:						
Jackson				24		
Missouri:						
Independence				10		
Moberly				7		
St. Joseph	78,500	45	0.57	42	0.54	1.1
Springfield	51,200	8	.16			
Montana:						
Anaconda				3		
Billings				7		
Nebraska:						
Grand Island		1		0		
Lincoln	69,900	32	.46	17	.24	1.9
North Platte		1		0		
Nevada:						
Reno		2		2		1.0
New Hampshire:						
Concord				23		
Dover				4		
Manchester	84,800			35	.41	
Nashua				2		
New Jersey:						
Asbury Park				15		
Belleville		33				
Carteret		8		1		8.0
Clifton		45		10		4.5
East Orange	63,300	50	.79	22	.35	2.3
Englewood				6		
Harrison		14				
Hoboken				39		
Irvington		46		18		2.6
Long Branch		25		4		6.2
Montclair		78		21		3.7
Morristown		9		1		9.0
Nutley		9		0		
Orange	36,100	38	1.05	30	.83	1.3
Passaic	70,800	45	.64	0		
Plainfield		35		11		3.2
Rahway		6		3		2.0
Rutherford				3		
Summit		11		4		2.7
West Orange		19		10		1.9
New Mexico:						
Albuquerque		443		194		2.3
New York:						
Amsterdam	35,900	58	1.62	19	.53	3.1
Auburn	135,700	30	.84	20	.56	1.5
Binghamton	73,900			28	.38	
Corning		23		4		5.7
Cortland		8		3		2.7
Elmira	49,500	50	1.01			
Gloversville		12		5		2.4
Hornell		12		7		1.7
Ithaca		31		4		7.7
Jamestown	45,100			20	.44	
Johnstown		83		8		10.4
Lackawanna		46		1		46.0
Lockport		22		4		5.5
Middletown		27		13		2.1
Mount Vernon	53,300	29	.54	10	.19	2.9
New Rochelle	47,300	53	1.12	14	.30	3.8
Newburgh	30,400	45	1.48			
Niagara Falls	66,600	8	.12			
North Tonawanda		19				
Olean		26		9		2.9
Ossining		5		1		5.0
Peekskill		23		14		1.6
Poughkeepsie	35,900	41	1.14	14	.39	2.9
Rome				37		
Schenectady	93,200	136	1.46	27	.29	5.0
Watertown	33,400	16	.48	9	.27	1.8
White Plains		36		15		2.4

¹ State census, 1925.

TUBERCULOSIS (RESPIRATORY SYSTEM)—Continued

City	Estimated population, July 1, 1927	Cases reported, 1927	Cases per 1,000 inhabitants	Deaths registered, 1927	Deaths per 1,000 inhabitants	Cases reported for each death registered
North Carolina:						
Gastonia.....				9		
Greensboro.....	50,300			30	0.60	
New Bern.....				23		
Raleigh.....		10		0		
Wilmington.....	38,400			17	.44	
Winston-Salem.....	77,100	143	1.85	69	.89	2.1
Ohio:						
Alliance.....		17		16		1.1
Ashland.....		15		3		5.0
Ashtabula.....		34		7		4.9
Bellefontaine.....		4		3		1.3
Cambridge.....		6		2		3.0
Chillicothe.....				2		
Cleveland Heights.....		38		4		9.5
Conneaut.....				3		
Coshocton.....		6		3		2.0
Cuyahoga Falls.....		11		3		3.7
East Cleveland.....		40		6		6.7
East Liverpool.....		17		12		1.4
Elyria.....				10		
Findlay.....		16		3		5.3
Kenmore.....		18		5		3.6
Lancaster.....				6		
Lima.....	48,700	41	.84	16	.33	2.6
Middletown.....		22		13		1.7
Newark.....		37		14		2.6
New Philadelphia.....		10		6		1.7
Niles.....				10		
Piqua.....				14		
Salem.....		7		1		7.0
Sandusky.....		24		16		1.5
Springfield.....	71,600	90	1.26	42	.59	2.1
Steubenville.....				10		
Tiffin.....		7				
Zanesville.....		42		15		2.8
Oregon:						
Salem.....		8		6		1.3
Pennsylvania:						
Altoona.....	67,800			25	.37	
Beaver Falls.....		4		1		4.0
Braddock.....		14		8		1.7
Braford.....				6		
Canonsburg.....				8		
Carnegie.....				2		
Chambersburg.....				4		
Columbia.....		8				
Donora.....				7		
Farrell.....		32				
Harrisburg.....	85,700			41	.48	
Homestead.....		27				
Jeannette.....				8		
Lancaster.....	57,700			26	.45	
Latrobe.....		2		0		
Lewistown.....				4		
Monessen.....		15		4		3.7
Warren.....		75		8		9.4
West Chester.....				1		
York.....	49,600	24	.48	10	.20	2.4
Rhode Island:						
Central Falls.....		5				
Cranston.....	36,600	10	.27	0		
Newport.....		32		15		2.1
Woonsocket.....	52,300	42	.80	23	.44	1.8
South Carolina:						
Anderson.....		28				
Charleston.....	75,000			94	1.25	
Greenville.....				40		
Spartanburg.....				27		
South Dakota:						
Sioux Falls.....				6		
Watertown.....		3				

¹ Includes 1 nonresident.² Includes 4 hospital nonresident deaths.

TUBERCULOSIS (RESPIRATORY SYSTEM)—Continued

City	Estimated population, July 1, 1927	Cases reported, 1927	Cases per 1,000 inhabitants	Deaths registered, 1927	Deaths per 1,000 inhabitants	Cases reported for each death registered
Texas:						
Amarillo.....		30		22		1.4
Austin.....	38,800	46	1.19	43	1.11	1.1
Galveston.....	49,900			45	.90	
Orange.....		16		7		2.3
Waco.....	45,700			33	.72	
Utah:						
Provo.....				2		
Virginia:						
Alexandria.....				17		
Charlottesville.....		22		12		1.8
Lynchburg.....	38,600	34	.88	26	.67	1.3
Petersburg.....	37,100	85	2.29	35	.94	2.4
Portsmouth.....	60,700			41	.68	
Roanoke.....	63,200			35	.55	
Suffolk.....		53		51		1.0
Washington:						
Aberdeen.....		18		12		1.5
Everett.....				17		
West Virginia:						
Clarksburg.....		23		11		2.1
Fairmont.....				10		
Wheeling.....		126		35		3.6
Wisconsin:						
Beloit.....		27		7		3.9
Eau Claire.....		15		13		1.2
Green Bay.....	35,500			17	.48	
Janesville.....		10		8		1.2
La Crosse.....	30,400	64	2.11	18	.59	3.6
Manitowoc.....		11		10		1.1
Marinette.....				16		
Oshkosh.....	33,200	20	.60	7	.21	2.9
Racine.....	71,300			25	.35	
Sheboygan.....	34,500			6	.17	
Stevens Point.....		14		3		4.7
Superior.....		33		21		1.6
West Allis.....		62		16		3.9
Wyoming:						
Cheyenne.....		4		2		2.0

TULARAEMIA

City	Cases reported, 1927	Deaths registered, 1927	City	Cases reported, 1927	Deaths registered, 1927
Alabama:					
Florence.....	1	0	Massachusetts:		
California:			Danvers.....	2	0
Sacramento.....	2	0	Minnesota:		
Illinois:			Virginia.....	1	0
Marion.....	4	0	Ohio:		
Iowa:			Newark.....	3	0
Clinton.....	1	0	Virginia:		
Kentucky:			Newport News.....	1	0
Lexington.....	32	0			

TYPHOID FEVER

City	Estimated population, July 1, 1927	Estimated expectancy		1927				
		Number of years	Cases	Cases reported	Cases per 1,000 inhabitants	Deaths registered	Deaths per 1,000 inhabitants	Fatalities per 100 cases
Alabama:								
Bessemer		2	16	8		0		
Florence		3	6	2		1		50.0
Gadsden		1	8	4		1		25.0
Mobile	67,700	6	28	20	0.30	5	0.07	25.0
Selma				16		4		25.0
Tuscaloosa		1	16	5		1		20.0
Arizona:								
Tucson		6	12	4		2		50.0
Arkansas:								
Fort Smith		5	28	33		9		27.3
Helena				4				
Hot Springs		4	7	7		1		14.3
Little Rock	77,500	7	63	28	.36	3	.04	10.7
California:								
Alhambra		3	7	2		0		
Bakersfield		6	1	2		0		
Berkeley	69,400	7	15	5	.07	0		
Eureka		7	3			4		
Fresno	62,200	6	8	4	.06	0		
Glendale		6	4	1		0		
Modesto		3	2	3		0		
Pasadena	60,500	7	9	5	.08	1	.02	20.0
Richmond		7	1	2		0		
Riverside		7	9	3		1		33.3
Sacramento	74,600	7	44	137	1.50	3	.04	8.1
San Jose	44,800	7	5	2	.04	1	.02	50.0
Santa Ana		6	6	7		0		
Stockton	49,800	2	6	4	.08	0		
Vallejo		4	1	6		1		16.7
Colorado:								
Boulder		7	4	6		0		
Colorado Springs		7	11	20		2		10.0
Greeley		3	0	1		1		100.0
Pueblo	44,100	6	25	20	.45	4	.09	20.0
Trinidad		7	10	5		1		20.0
Connecticut:								
Bristol		6	4	2		0		
Greenwich		7	3	6		0		
New Britain	71,200	6	12	2	.03	1	.01	50.0
New London		6	3	3		1		100.0
Norwich		7	5	4				
Shelton		2	1	3		3		
Stamford Town				3		0		
Florida:								
Orlando		1	8	2		1		50.0
West Palm Beach		3	3	4		0		
Georgia:								
Athens		5	20	7		0		
Augusta	56,200	5	49	76	1.35	15	.27	19.7
Brunswick		7	12	8		2		25.0
Columbus	45,800					7	.15	
Macon	60,100	7	51	28	.47	7	.12	25.0
Savannah	99,700	7	44	33	.33	8	.08	24.2
Waycross		1	7	12		2		16.7
Idaho:								
Boise		7	4	3		1		33.3
Illinois:								
Alton		5	5	12		0		
Aurora	46,500	6	13	4	.09	2	.04	50.0
Berwyn		5	1	2		0		
Bloomington		7	4	8		1		12.5
Decatur	56,000	4	12	30	.54	5	.09	16.7
East St. Louis	73,100	7	13	14	.19	3	.04	21.4
Elgin	35,000	7	6	6	.17	0		
Evanston	46,400	7	4	5	.11	0		
Freeport		6	3	3		0		
Galesburg		7	16	20		2		10.0
Jacksonville		7	21	24		4		16.7
Joliet	41,500	5	38	5	.12	0		
Kewanee		5	9	1		0		
La Salle		6	1	1		0		

¹ Includes 35 cases where source of infection was outside the city limits.

² Nonresidents.

³ Nonresident.

TYPHOID FEVER—Continued

City	Estimated population, July 1, 1927	Estimated expectancy		1927				
		Number of years	Cases	Cases reported	Cases per 1,000 inhabitants	Deaths registered	Deaths per 1,000 inhabitants	Fatalities per 100 cases
Illinois—Continued.								
Marion.....		1	23	2		1		50.0
Maywood.....		7	1	3		2		66.7
Murphysboro.....		4	5			2		
Oak Park.....	55,600	7	5	6	0.11	0		
Pekin.....		7	2	2		1		50.0
Peoria.....	83,500	6	8	2	.02	1	0.01	50.0
Quincy.....	39,500	7	14	11	.28	2	.05	18.2
Rockford.....	80,900	7	10	11	.14	3	.04	27.3
Rock Island.....	41,900	7	7	3	.07	1	.02	33.3
Springfield.....	66,400	7	15	18	.27	1	.02	5.6
Urbana.....		5	5	1		1		100.0
Waukegan.....		6	8	11				
Indiana:								
Anderson.....		7	5	2		0		
Connersville.....		3	2	2		0		
Crawfordsville.....		7	1	1		0		
East Chicago.....	49,100	7	9	3	.06			
Elkhart.....		5	10	14		2		14.3
Evansville.....	96,600	1	11	29	.30	8	.08	27.6
Gary.....	85,200	4	3	11	.13	7	.08	63.6
Huntington.....		5	9	7		2		28.6
Kokomo.....	39,100	7	11	5	.13	0		
La Fayette.....		7	3	13		2		15.4
La Porte.....		5	1	1		0		
Logansport.....		7	9	10		2		20.0
Michigan City.....		6	4	3		1		33.3
Mishawaka.....		7	6	2		0		
Muncie.....	45,800	6	14	9	.20	2	.04	22.2
New Albany.....		5	2	6		1		16.7
New Castle.....		6	3			1		
Richmond.....		6	4			2		
South Bend.....	84,200	5	10	6	.07	2	.02	33.3
Terre Haute.....	72,700	5	7	5	.07	2	.03	40.0
Vincennes.....				2		1		50.0
Wabash.....				1		0		
Iowa:								
Boone.....		4	1	2		0		
Burlington.....		7	4	8		0		
Cedar Rapids.....	54,100	7	3	9	.17	0		
Davenport.....	52,500	5	6	5	.10			
Dubuque.....	41,900	6	3	2	.05			
Kansas:								
Coffeyville.....		7	16	33		3		9.1
Eldorado.....		6	11	2		1		50.0
Emporia.....		4	13	4		0		
Fort Scott.....		7	6	3		3		100.0
Hutchinson.....		6	13	7		2		28.6
Lawrence.....		7	6	5		1		20.0
Parsons.....		6	6	7		1		14.3
Salina.....		2	11	1				
Topeka.....	61,900	7	22	12	.19	2	.03	16.7
Kentucky:								
Covington.....	58,700	5	17	10	.17	0		
Lexington.....	48,100	5	18			8	.17	
Paducah.....		7	13	31		6		19.4
Louisiana:								
Baton Rouge.....		5	6	10		1		10.0
Lake Charles.....		4	9	11		1		9.1
Monroe.....		1	8	23				
Shreveport.....	78,000	4	37	13	.17	2	.03	15.4
Maine:								
Auburn.....		6	3	6		0		
Bangor.....		5	11	14		1		7.1
Bath.....		7	2	1		1		100.0
Biddeford.....		7	6	6		1		16.7
Portland.....	77,500	7	34	40	.52	3	.04	7.5
South Portland.....		2	3	2				
Waterville.....		7	5	5		2		40.0
Westbrook.....		1	3	4		0		
Maryland:								
Cumberland.....		6	15	6		0		
Frederick.....		1	5	4		0		

* State census, 1925.

TYPHOID FEVER—Continued

City	Estimated population, July 1, 1927	Estimated expectancy		1927				
		Number of years	Cases	Cases reported	Cases per 1,000 inhabitants	Deaths registered	Deaths per 1,000 inhabitants	Fatalities per 100 cases
Massachusetts:								
Adams		7	9	1		0		
Arlington		7	5	2		0		
Beverly		7	5	4		0		
Braintree		6	1	1		0		
Brockton	65,300	7	7	5	0.08	0		
Brookline	44,800	7	5	4	.09	0	0.02	25.0
Chelsea	49,000	7	16	24	.49	0		
Chicopee	44,300	7	2	1	.02	1	.02	100.0
Everett	42,900	7	8	6	.14	0		
Gardner		7	4	6		0		
Greenfield		6	3	1		0		
Haverhill	49,200	7	7	11	.22	0		
Lawrence	93,500	7	23	14	.15	1	.01	7.1
Malden	52,900	7	8	6	.11	0		
Marlboro		6	3	3		0		
Medford	51,300	7	6	4	.08	1	.02	25.0
Melrose		7	5	10		1		10.0
Methuen		7	2	6		0		
Milton		2	0	2		1		50.0
Newburyport		7	2	1		0		
Newton	56,000	7	9	3	.05	0		
North Adams		7	6	2		0		
Northampton		7	6	3		0		
Northbridge		7	1	2		0		
Norwood		5	1	1		0		
Peabody		7	1	1		0		
Pittsfield	49,100	7	9	2	.04	0		
Plymouth		6	5	1		0		
Quincy	65,300	7	9	4	.06	1	.02	25.0
Revere	35,200	2	5	7	.20	0		
Salem	42,900	7	2	1	.02	1	.02	100.0
Saugus		7	2	1		0		
Southbridge		7	3	2		0		
Taunton	40,200	5	4	2	.05	0		
Wakefield		7	4	10		0		
Waltham	36,400	7	9	4	.11	0		
Watertown		7	1	1				
Westfield		7	3	2		1		50.0
Winthrop		7	2	1		0		
Michigan:								
Adrian		4	11	2		1		50.0
Ann Arbor		7	4	5		1		20.0
Bay City	49,400	7	67	16	.32	5	.10	31.2
Highland Park	81,700	7	12	3	.04	1	.01	33.3
Ironwood		7	2	4		0		
Jackson	61,700	7	12	44	.71	7	.11	15.9
Kalamazoo	55,500	7	14	4	.07	0		
Lansing	75,600	7	20	12	.16	0		
Muskegon	45,500	7	14	2	.04	1	.02	50.0
Pontiac	54,000	7	8	12	.22	0		
Port Huron		7	7	1		1		100.0
River Rouge		3	8	5		2		40.0
Saginaw	74,400	7	47	82	1.10	12	.16	14.6
Sault Ste. Marie		7	2	5		0		
Wyandotte		1	4	3		0		
Minnesota:								
Brainerd						1		
Hibbing		7	1	2		0		
Mankato		5	1	2		0		
St. Cloud		5	1	1		0		
Virginia		3	0	3		0		
Winona		6	2	2		0		
Mississippi:								
Jackson		4	37	13		1		7.7
Missouri:								
Cape Girardeau		1	3			2		
Hannibal		2	2	3		1		33.3
Independence		2	6	3		1		33.3
Joplin		6	17	4				
Moberly		4	6	11		1		9.1
St. Joseph	78,500	7	12	9	.11	4	.05	44.4
Springfield	51,200	6	19	14	.27			

* State census, 1925.

TYPHOID FEVER—Continued

City	Estimated population, July 1, 1927	Estimated expectancy		1927				
		Number of years	Cases	Cases reported	Cases per 1,000 inhabitants	Deaths registered	Deaths per 1,000 inhabitants	Fatalities per 100 cases
Montana:								
Billings		1	6	3		1		33.3
Great Falls		6	13	16		1		6.2
Helena		5	2	3		0		
Nebraska:								
Lincoln	69,900	7	8	18	0.26	0		
North Platte		3	1	2		2		100.0
Nevada:								
Reno		7	5	4		0		
New Hampshire:								
Berlin		6	4	1		0		
Dover		6	4	2		0		
Keene		7	1	3		0		
Manchester	84,800	5	5	1	.01	0		
New Jersey:								
Asbury Park		7	3	2		0		
Atlantic City	54,200	2	11	22	.41	3	0.06	13.6
Belleville		7	2	1		1		100.0
Bloomfield		7	1	4		0		
Bridgeton		6	5	2				
Cartaret		3	1	2		0		
Clifton		6	4	5		0		
Collingswood		2	2	2		0		
Dover		3	0	1		0		
East Orange	63,300	7	8	6	.09	0		
Harrison		7	1	2				
Hoboken		5	7	1		0		
Irvington		6	7	1		1		100.0
Lodi		2	2	2		0		
Long Branch		7	5	8		1		12.5
Millville		1	3	1		0		
Montclair		7	3	5		2		40.0
Morristown		7	6	1		0		
New Brunswick	39,900	7	5	14	.35	1	.03	7.1
Nutley		1	0	2		0		
Orange	36,100	7	2	4	.11	0		
Passaic	70,800	7	5	2	.03	0		
Perth Amboy	49,100	7	6	1	.02	0		
Plainfield		7	7	4		0		
Ridgefield Park		3	2	1		0		
Summit		7	4	3		0		
West New York		7	1	2		0		
West Orange		6	0	1		0		
New Mexico:								
Albuquerque		4	21	19		3		15.8
New York:								
Amsterdam	35,900	5	11	1	.03	0		
Cohoes		7	3	47		4		8.5
Corning		6	8	1		0		
Cortland		6	4	3		0		
Dunkirk		7	4	2		1		50.0
Elmira	49,500	5	15	10	.20	1	.02	10.0
Freeport		2	2	2		0		
Geneva		6	6	1		0		
Hornell		7	4	10		0		
Ithaca		7	10	4		0		
Jamestown	45,100	7	9	1	.02	0		
Johnstown		4	1	3		0		
Kingston		6	22	6		0		
Lackawanna		6	20	23		1		4.3
Little Falls		7	1	1		0		
Lockport		7	6	1		1		100.0
Middletown		6	5	3		0		
Mount Vernon	53,300	7	8	2	.04	1	.02	50.0
New Rochelle	47,300	6	11	8	.17	1	.02	12.5
Newburgh	30,400	7	11	7	.23	0		
Niagara Falls	66,600	7	13	4	.06	0		
North Tonawanda		7	9	3				
Olean		7	7	3		0		
Ossining		3	3	1		0		
Peekskill		7	2	3		2		66.7
Poughkeepsie	35,900	7	6	2	.06	0		
Rome		7	4	10		0		
Schenectady	93,200	7	21	17	.18	1	.01	5.9
Troy	72,300	7	17	15	.21	5	.07	33.3

TYPHOID FEVER—Continued

City	Estimated population, July 1, 1927	Estimated expectancy		1927				
		Number of years	Cases	Cases reported	Cases per 1,000 inhabitants	Deaths registered	Deaths per 1,000 inhabitants	Fatalities per 100 cases
New York—Continued.								
Watertown.....	33,400	7	23	18	0.54	3	0.09	16.7
Watervliet.....		5	5	1		0		
White Plains.....		7	5	3		0		
North Carolina:								
Asheville.....		7	18	12		5		41.7
Durham.....	45,700	1	52	21	.46	8	.18	38.1
Gastonia.....				4		1		25.0
Greensboro.....	50,300	4	26	27	.54	15	.10	18.5
New Bern.....		4	2	1		0		
Raleigh.....		7	13	5		5		100.0
Rocky Mount.....		4	4	12		3		25.0
Wilmington.....	38,400	7	17	7	.18	4	.10	57.1
Winston-Salem.....	77,100	6	35	29	.38	6	.08	20.7
Ohio:								
Alliance.....		4	1	4		0		
Ashland.....		1	2	1		0		
Ashtabula.....		7	17	1		0		
Barberton.....		7	5	7		0		
Bellefontaine.....		1	23	7		1		14.3
Bucyrus.....		7	4	1		0		
Cambridge.....		5	5	2		0		
Chillicothe.....		7	11	2		1		50.0
Cleveland Heights.....		5	4	3		0		
Conneaut.....		3	3	1		0		
Coshocton.....		3	13	4		0		
Cuyahoga Falls.....		6	9	2		0		
East Liverpool.....		5	3	2		2		100.0
Elyria.....		7	5	4		0		
Findlay.....		7	2	1		0		
Hamilton.....	43,800	7	8	8	.18	3	.07	37.5
Kenmore.....		6	2	1		0		
Lakewood.....	62,200	4	3	3	.05	0		
Lancaster.....		5	3	2		2		100.0
Lima.....	48,700	7	22	11	.23	2	.04	18.2
Lorain.....	44,000	7	15	6	.14	1	.02	16.7
Mansfield.....		7	14	15		3		20.0
Middletown.....		7	10	18		2		11.1
Newark.....		6	11	6		4		66.7
New Philadelphia.....		4	3	1		0		
Niles.....		6	3	2		0		
Norwood.....		7	2	3		0		
Salem.....		7	3	2		0		
Sandusky.....		7	11	2		1		50.0
Springfield.....	71,600	7	11	1	.01	0		
Steubenville.....		7	7	10		2		20.0
Tiffin.....		2	0	2		1		50.0
Warren.....		5	21	3		1		33.3
Zanesville.....		7	8	6		0		
Oklahoma:								
Bartlesville.....				31		1		3.2
Sapulpa.....		2	6	5		0		
Oregon:								
Salem.....		2	10	23		2		8.7
Pennsylvania:								
Altoona.....	67,800	7	11	13	.19	1	.01	7.7
Beaver Falls.....		6	7	2		0		
Berwick.....		3	5	3		1		33.3
Bethlehem.....	66,000	6	14	4	.06	0		
Braddock.....		7	4	4		2		50.0
Butler.....		7	9	2		0		
Canonsburg.....		5	12	2		1		50.0
Carbondale.....		6	1	9		1		11.1
Carlisle.....		7	1	2		0		
Carnegie.....		6	3	2		0		
Chambersburg.....		7	8	1		0		
Charleroi.....		7	1	1		0		
Clairton.....		4	1	2		0		
Columbia.....		2	6	1		0		
Connellsville.....		7	5			1		
Donora.....		6	1	1		0		
Duquesne.....		5	2	1		0		
Easton.....	37,900	6	7	3	.08	0		

¹ Nonresidents.² Includes 2 nonresidents.

TYPHOID FEVER—Continued

City	Estimated population, July 1, 1927	Estimated expectancy		1927				
		Number of years	Cases	Cases reported	Cases per 1,000 inhabitants	Deaths registered	Deaths per 1,000 inhabitants	Fatalities per 100 cases
Pennsylvania—Continued.								
Farrell		6	3	1		0		
Greensburg		3	1	8				
Harrisburg	85,700	7	17	12	0.14	5	0.06	41.7
Jeannette		7	7	3		0		
Kingston		4	2	1		0		
Lancaster	57,700	7	21	6	.10	2	.03	33.3
Lebanon		2	6	5				
Lewistown		3	7	3		0		
McKeesport	49,900	7	9			5	.10	
New Castle	51,600	6	12	8	.16			
Norristown	35,800	7	12	10	.28	3	.08	30.0
Oil City		7	3	2		2		100.0
Phoenixville		3	1	1		0		
Plymouth		6	1	3				
Sharon		6	7	6		0		
Swissvale		7	9	4		0		
Warren		6	6	1		0		
Washington		6	23	4		2		50.0
West Chester		7	3	18		3		16.7
Williamsport	43,600	3	7	1	.02			
Windber		1	0	1		0		
Woodlawn		7	5	3		0		
York	49,600	6	22	4	.08	0		
Rhode Island:								
Cranston	36,600	6	2	1	.03	0		
Westerly		2	0	10				
Woonsocket	52,300	3	6	2	.04	0		
South Carolina:								
Anderson		4	12	27		4		14.8
Charleston	75,000	2	78	62	.83	18	.24	29.0
Columbia	50,000	6	40	19	.38	1	.02	5.3
Greenville		6	21	6		0		
Spartanburg		3	11	13		4		30.8
Sumter		3	15	13		5		38.5
South Dakota:								
Sioux Falls		7	4	3		2		66.7
Watertown				1				
Texas:								
Amarillo		6	12	4		0		
Austin	38,800	3	12	10	.26	6	.15	60.0
Cleburne		5	10	15		3		20.0
Galveston	49,900	7	32	18	.36	1	.02	5.6
Orange		2	8	5		0		
San Angelo				8				
Texarkana		5	6	7		2		28.6
Tyler		7	6	10		3		30.0
Waco	45,700	7	12	12	.26	1	.02	8.3
Utah:								
Ogden	38,300	6	11	6	.16			
Vermont:								
Barre		7	1	1		1		100.0
Bennington		3	2	4		0		
Virginia:								
Alexandria		7	4	6		2		33.3
Charlottesville		6	5	1		0		
Danville		7	7			4		
Lynchburg	38,600	6	19	29	.75	1	.03	3.4
Newport News	51,700	7	11	18	.35	2	.04	11.1
Petersburg	37,100	7	18	6	.16	1	.03	16.7
Portsmouth	60,700	7	33			1	.02	
Roanoke	63,200	6	35	15	.24	6	.09	40.0
Suffolk		1	31	8				
Washington:								
Aberdeen		7	4	1		0		
Vancouver		6	5			1		
Yakima		7	7	7		3		42.9

* Includes 1 hospital nonresident.

TYPHOID FEVER—Continued

City	Estimated population, July 1, 1927	Estimated expectancy		1927				
		Number of years	Cases	Cases reported	Cases per 1,000 inhabitants	Deaths registered	Deaths per 1,000 inhabitants	Fatalities per 100 cases
West Virginia:								
Bluefield.....		4	26	21		7		33.3
Charleston.....	53,400	7	39	7 49	0.92	15	0.28	30.6
Clarksburg.....		4	9	10		5		50.0
Fairmont.....		7	19	21		5		23.8
Morgantown.....		2	31			6		
Wheeling.....		6	51	14		12		14.3
Wisconsin:								
Green Bay.....	35,500	7	7	2	.06	1	.03	50.0
Janesville.....		7	1	1		0		
Kenosha.....	54,600	7	6	6	.11	2	.04	33.3
La Crosse.....	30,400	7	8	4	.13	2	.07	50.0
Madison.....	48,800	7	5	12	.25	2	.04	16.7
Manitowoc.....		5	2	1		0		
Oshkosh.....	33,200	7	5	2	.06	0		
Sheboygan.....	34,500	6	5	6	.17	2	.06	33.3
Stevens Point.....				1		0		
Superior.....		5	2			7		
Waukesha.....				2		1		50.0
Wausau.....		7	6	4		0		
Wyoming:								
Casper.....		1	9	2		0		

¹ Nonresidents.⁷ Includes 20 nonresidents.¹ Includes 11 nonresidents.

TYPHUS FEVER

City	Cases reported, 1927	Deaths registered, 1927	City	Cases reported, 1927	Deaths registered, 1927
Alabama:			Louisiana:		
Mobile.....	10	12	Baton Rouge.....	1	0
Georgia:			New York:		
Athens.....	1	0	Cohoes.....	4	0
Augusta.....	1	1	Virginia:		
Macon.....	1	0	Lynchburg.....	1	1
Savannah.....	173	16			
Waycross.....	6	0			

¹ Reported as Brill's disease.

UNDULANT FEVER

City	Cases reported, 1927	Deaths registered, 1927	City	Cases reported, 1927	Deaths registered, 1927
Iowa:			New Jersey:		
Davenport.....	1		Montclair.....	1	0
Michigan:			Oklahoma:		
Port Huron.....	2	0	Bartlesville.....	1	0

WHOOPIING COUGH

City	Estimated population, July 1, 1927	Average, 1922-1926		1927				
		Number of years	Cases	Cases reported	Cases per 1,000 inhabitants	Deaths registered	Deaths per 1,000 inhabitants	Cases reported for each death registered
Alabama:								
Bessemer		2	9	20		4		5.0
Florence		2	15	11		3		3.7
Gadsden		1	18	15		0		
Mobile	67,700			8	0.12	6	0.09	1.3
Selma				82		3		27.3
Tuscaloosa		1	24	21		1		21.0
Arizona:								
Tucson		3	8			2		
Arkansas:								
Fort Smith		4	149	153		7		21.
Helena				5				
Little Rock	77,500	5	21	61	.79	4	.05	15.2
California:								
Alhambra		3	37	41		2		20.5
Bakersfield		4	15	32		4		8.0
Berkeley	69,400	5	266	610	8.79	4	.06	152.5
Chico		3	12	1		0		
Eureka		5	26	82		0		
Fresno	62,200	4	32	23	.37	0		
Glendale		5	55	113		1		113.0
Modesto				1		0		
Pasadena	60,500	5	260	167	2.76	1	.02	167.0
Richmond		5	4	1		1		1.0
Riverside		5	76	96		0		
Sacramento	74,600	5	60	30	.40	3	.04	10.0
San Jose	44,800	5	51	7	.16	0		
Santa Ana		5	19	47		0		
Santa Barbara		3	76	11		0		
Stockton	49,800	3	143	125	2.51	0		
Vallejo		1	5	8		0		
Colorado:								
Boulder		5	57	66		0		
Colorado Springs		5	114	49		1		49.0
Greeley		4	11	32		1		32.0
Pueblo	44,100	5	22	23	.52	1	.02	23.0
Connecticut:								
Bristol		4	25	44		1		44.0
Fairfield		5	31	17				
Greenwich		5	115	112		0		
Manchester		4	3	12		0		
New Britain	71,200	5	103	116	1.63	5	.07	23.2
New London		4	142	181		1		181.0
Norwich		5	17	17				
Shelton		2	11	4				
Stamford Town				204		1		204.0
Stratford		4	12	22		0		
Florida:								
Orlando		1	3	2		0		
Georgia:								
Athens		4	21	24		2		12.0
Augusta	56,200	2	8	68	1.21	7	.12	9.7
Brunswick		5	15	10		0		
Columbus	45,800					2	.04	
Mac on	60,100	5	331	110	1.83	1	.02	110.0
Savannah	99,700	5	33	38	.38	4	.04	9.5
Waycross		1	58	20		0		
Idaho:								
Boise		4	8	7		0		
Pocatello		3	16	9		0		
Illinois:								
Alton		5	57	37		2		18.5
Aurora	46,500	4	122	49	1.05	0		
Berwyn		5	50	158		0		
Bloomington		5	128	129		2		64.5
Blue Island		5	16	69		0		
Champaign		5	44	34		1		34.0
Chicago Heights		4	4	14		0		
Cicero	68,500	5	87	45	.66	0		
Danville	38,200	4	41	40	1.05	0		
Decatur	56,000	4	90	177	3.16	4	.07	44.2
East Moline		3	54	21		0		
East St. Louis	73,100	5	30	42	.57	2	.03	21.0

WHOOPIING COUGH—Continued

City	Estimated population, July 1, 1927	Average, 1922-1926		1927				
		Number of years	Cases	Cases re- ported	Cases per 1,000 inhab- itants	Deaths regis- tered	Deaths per 1,000 inhab- itants	Cases reported for each death regis- tered
Illinois—Continued.								
Elgin.....	35,000	5	139	219	6.26	0	—	—
Evanston.....	46,400	5	305	248	5.34	0	—	—
Freeport.....	—	4	89	19	—	1	—	19.0
Galesburg.....	—	5	104	70	—	0	—	—
Jacksonville.....	—	5	65	31	—	1	—	31.0
Joliet.....	41,500	3	15	17	.41	2	0.05	8.5
Kewanee.....	—	2	54	12	—	—	—	—
La Salle.....	—	5	65	10	—	0	—	—
Marion.....	—	1	3	17	—	0	—	—
Maywood.....	—	5	52	243	—	0	—	—
Moline.....	35,100	5	143	171	4.87	1	.03	171.0
Mount Vernon.....	—	—	—	1	—	1	—	—
Oak Park.....	55,600	5	370	342	6.15	1	.02	342.0
Pekin.....	—	5	33	39	—	0	—	—
Peoria.....	83,500	5	161	104	1.25	3	.04	34.7
Quincy.....	39,500	5	107	61	1.54	0	—	—
Rockford.....	80,900	5	175	275	3.40	2	.02	137.5
Rock Island.....	41,900	5	147	264	6.30	1	.02	264.0
Springfield.....	66,400	5	217	24	.36	0	—	—
Urbana.....	—	3	27	30	—	1	—	30.0
Waukegan.....	—	4	30	36	—	—	—	—
Indiana:								
Anderson.....	—	4	62	108	—	0	—	—
Crawfordsville.....	—	5	11	3	—	0	—	—
East Chicago.....	49,100	5	16	15	.31	—	—	—
Evansville.....	96,600	1	130	29	.30	8	.08	3.6
Gary.....	85,200	3	20	3	.04	0	—	—
Kokomo.....	39,100	5	7	4	.10	1	.03	4.0
La Fayette.....	—	5	7	4	—	0	—	—
Logansport.....	—	2	4	1	—	1	—	1.0
Michigan City.....	—	5	6	4	—	0	—	—
Mishawaka.....	—	4	8	9	—	1	—	9.0
Muncie.....	45,800	5	178	141	3.08	2	.04	70.5
New Castle.....	—	3	4	1	—	0	—	—
Peru.....	—	1	1	4	—	0	—	—
Richmond.....	—	5	16	5	—	2	—	2.5
South Bend.....	84,200	5	81	46	.55	0	—	—
Terre Haute.....	72,700	4	51	49	.67	2	.03	24.5
Iowa:								
Boone.....	—	2	5	19	—	0	—	—
Burlington.....	—	5	39	44	—	1	—	44.0
Cedar Rapids.....	54,100	3	45	178	3.29	1	.02	178.0
Clinton.....	—	3	13	12	—	0	—	—
Davenport.....	52,500	4	25	12	.23	—	—	—
Dubuque.....	41,900	5	15	8	.19	—	—	—
Iowa City.....	—	5	10	30	—	—	—	—
Muscatine.....	—	5	24	4	—	0	—	—
Ottumwa.....	—	—	—	75	—	—	—	—
Waterloo.....	37,000	4	147	73	1.97	—	—	—
Kansas:								
Arkansas City.....	—	2	9	10	—	0	—	—
Coffeyville.....	—	5	32	38	—	0	—	—
Eldorado.....	—	4	64	148	—	0	—	—
Emporia.....	—	4	28	144	—	1	—	144.0
Fort Scott.....	—	5	21	6	—	0	—	—
Hutchinson.....	—	4	25	3	—	0	—	—
Lawrence.....	—	5	23	99	—	1	—	99.0
Leavenworth.....	—	5	15	11	—	—	—	—
Parsons.....	—	5	16	3	—	0	—	—
Salina.....	—	—	—	42	—	—	—	—
Topeka.....	61,900	5	334	615	9.94	0	—	—
Kentucky:								
Covington.....	58,700	4	13	1	.02	0	—	—
Lexington.....	48,100	3	99	83	1.73	7	.15	11.9
Paducah.....	—	5	117	220	—	6	—	36.7
Louisiana:								
Lake Charles.....	—	4	18	46	—	2	—	23.0
Shreveport.....	78,000	4	13	39	.50	1	.01	39.0
Maine:								
Auburn.....	—	4	37	103	—	0	—	—
Bangor.....	—	4	44	33	—	0	—	—

State census, 1925.

WHOOPIING COUGH—Continued

City	Estimated population, July 1, 1927	Average, 1922-1926		1927				
		Number of years	Cases	Cases re- ported	Cases per 1,000 inhab- itants	Deaths regis- tered	Deaths per 1,000 inhab- itants	Cases report- ed for each death regis- tered
Maine—Continued.								
Bath		5	29	12		0		
Biddeford		5	17	38		0		
Lewiston	36,100	5	115	58	1.61	2	0.06	29.0
Portland	77,500	5	185	253	3.26	8	.10	31.6
South Portland		2	17	22				
Waterville		5	37	4		2		2.0
Westbrook				2		0		
Maryland:								
Cumberland		4	40	11		1		11.0
Frederick		1	8	6		1		6.0
Massachusetts:								
Adams		5	12	4		0		
Amesbury		4	17	7		0		
Arlington		5	94	133		0		
Athol		2	2	9		2		4.5
Attleboro		5	65	3		0		
Beverly		5	31	30		2		15.0
Braintree		4	35	66		2		33.0
Brockton	165,300	5	181	123	1.88	1	.02	123.0
Brookline	44,800	5	169	188	4.20	2	.04	94.0
Chelsea	49,000	5	61	38	.78			
Chicopee	44,300	5	19	14	.32	0		
Clinton		5	10	29		0		
Danvers		5	12	8				
Easthampton		5	12	4		1		4.0
Everett	42,900	5	86	54	1.26	0		
Frammingham		5	51	75		0		
Gardner		5	23	22		1		22.0
Gloucester		1	3	10		2		5.0
Greenfield		4	65	75		0		
Haverhill	149,200	5	125	92	1.87	1	.02	92.0
Lawrence	193,500	5	158	50	.53	3	.03	16.7
Leominster		5	27	30		0		
Malden	52,900	5	115	89	1.68	2	.04	44.5
Marlboro		4	25	27		1		27.0
Medford	51,300	5	112	123	2.40	0		
Melrose		5	41	24		0		
Methuen		5	84	106		1		106.0
Millford		5	11	10		0		
Milton		2	25	57		1		57.0
Natick		4	25	32		0		
Newburyport		5	29	13		0		
Newton	56,000	5	317	447	7.98	0		
North Adams		5	6	3		0		
Northampton		5	42	30		0		
Northbridge		5	23	29		3		9.7
Norwood		3	17	4				
Palmer		3	2	3				
Peabody		5	27	34		1		34.0
Pittsfield	49,100	5	36	109	2.22	3	.06	36.3
Plymouth		4	13	24				
Quincy	65,300	5	151	92	1.41	2	.03	46.0
Revere	35,200	1	23	46	1.31	2	.06	23.0
Salem	42,900	5	66	25	.58	1	.02	25.0
Saugus		5	26	11		0		
Southbridge		5	6	5		0		
Taunton	40,200	5	24	9	.22	0		
Wakefield		5	17	8		0		
Waltham	36,400	5	103	61	1.68	0		
Watertown		5	78	79				
Webster				7				
Westfield		5	11	7		0		
Weymouth				30		0		
Winchester		5	38	77				
Winthrop		5	65	16		0		
Woburn		4	19	4		1		4.0
Michigan:								
Adrian		4	17	5		0		
Ann Arbor		5	79	111		1		111.0
Bay City	49,400	5	78	11	.22	0		
Benton Harbor		5	9	12		0		

¹ State census, 1925.

WHOOPIING COUGH—Continued

City	Estimated population, July 1, 1927	Average, 1922-1926		1927				
		Number of years	Cases	Cases re- ported	Cases per 1,000 inhab- itants	Deaths regis- tered	Deaths per 1,000 inhab- itants	Cases reported for each death regis- tered
Michigan—Continued.								
Hamtramck	93,800	5	25	10	0.11	0		
Highland Park	81,700	5	191	226	2.77	0		
Holland		5	39	63				
Ironwood		5	70	8		0		
Ishpeming		5	5	23		0		
Jackson	61,700	5	223	99	1.60	1	0.02	99.0
Kalamazoo	55,500	5	200	198	3.57	3	.05	66.0
Lansing	75,600	5	277	169	2.24	2	.03	84.5
Marquette		4	70	11		0		
Mount Clemens		1	6	30		0		
Muskegon	45,500	5	58	9	.20	1	.02	9.0
Pontiac	54,000	5	170	131	2.43	1	.02	131.0
Port Huron		5	145	181		2		90.5
River Rouge		3	2	1		1		1.0
Saginaw	74,400	5	126	219	2.94	7	.09	31.3
Sault Ste. Marie		5	31	24		1		24.0
Wyandotte		1	3	7		0		
Minnesota:								
Hibbing		4	4	3		0		
Mankato				20		0		
Virginia				6		1		6.0
Winona		5	73	92		1		92.0
Mississippi:								
Jackson		4	192	359		0		
Missouri:								
Cape Girardeau		1	8	2		1		2.0
Hannibal		2	6	36		0		
Independence		3	30	4		0		
Joplin		4	5	3				
St. Joseph	78,500	5	42	45	.57	3	.04	15.0
Springfield	51,200	4	15	24	.47			
Montana:								
Billings		1	29	128		1		128.0
Great Falls		4	67	3		0		
Helena		4	7	5		0		
Nebraska:								
Grand Island		5	12	7		0		
Lincoln	69,900	5	268	178	2.55	2	.03	89.0
North Platte		3	3	3		1		3.0
New Hampshire:								
Berlin		3	10	45		0		
Claremont		3	12	7		1		7.0
Concord		5	11			1		
Dover		5	20	45		0		
Keene		5	6	36		0		
Laconia		1	23	96		1		96.0
Manchester	84,800	3	16			7	.08	
Nashua		4	5	2		0		
New Jersey:								
Asbury Park		5	39	34		0		
Atlantic City	54,200	2	47	17	.31	0		
Bayonne	93,100	4	11	18	.19	6	.06	3.0
Belleville		5	53	87		0		
Bloomfield		5	125	241		1		241.0
Bridgeton		5	7	8				
Cartaret				7		0		
Clifton		4	22	53		0		
Collingswood		2	19	11				
Dover		3	63	48		0		
East Orange	63,300	5	344	467	7.38	3	.05	155.7
Englewood		4	69	77				
Garfield		4	7	9		0		
Harrison		5	30	13				
Hoboken		5	17	14		0		
Irvington		4	158	240		0		
Kearny		4	104	98		0		
Lodi		2	9	23		1		23.0
Long Branch		5	66	59		1		59.0
Millville		1	2	66		0		
Montclair		5	143	404		5		80.8
Morristown		5	36	139		0		
New Brunswick	39,900	5	0	3	.08	0		

WHOOPIING COUGH—Continued

City	Estimated population, July 1, 1927	Average, 1922-1926		1927				
		Number of years	Cases	Cases reported	Cases per 1,000 inhabitants	Deaths registered	Deaths per 1,000 inhabitants	Cases reported for each death registered
New Jersey—Continued.								
Nutley		1	11	16		1		16.0
Orange	36,100	5	179	194	5.37	2	0.06	97.0
Passaic	70,800	5	75	66	.93	2	.03	33.0
Perth Amboy	49,100	5	11	11	.22	1	.02	11.0
Plainfield		5	97	41		1		41.0
Rahway		5	8	2		0		
Ridgefield Park		3	13	8		0		
Rutherford		3	57	60		1		60.0
Summit		5	52	32		0		
West New York		4	3	4		0		
West Orange		5	101	150		1		150.0
New Mexico:								
Albuquerque		2	74	8		0		
New York:								
Amsterdam	35,900	5	73	52	1.45	2	.06	26.0
Auburn	135,700	3	24	39	1.09	0		
Binghamton	73,900	5	324	133	1.80	2	.03	66.5
Cohoes		5	17	38		0		
Corning		4	21	182		0		
Cortland		4	17	1		0		
Dunkirk		5	49	16		1		16.0
Elmira	49,500	4	282	298	6.02	1	.02	298.0
Endicott		3	81	126		0		
Freeport		2	25	19		1		19.0
Geneva		4	26	24		0		
Gloversville		5	57	96		0		
Hornell		5	154	171		1		171.0
Ithaca		5	146	31		0		
Jamestown	45,100	5	277	91	2.02	0		
Johnstown		3	17	37		0		
Kingston		4	53	40		0		
Lackawanna		4	60	32		1		32.0
Little Falls		5	56	4		0		
Lockport		5	34	23		0		
Middletown		4	78	35		0		
Mount Vernon	53,300	5	114	119	2.23	0		
New Rochelle	47,300	5	80	70	1.48	0		
Newburgh	30,400	5	36	18	.59	0		
Niagara Falls	66,600	5	126	71	1.07	5	.08	14.2
North Tonawanda		5	44	43				
Olean		5	147	25		0		
Ossining		1	5	44		0		
Peekskill		5	42	29		0		
Poughkeepsie	35,900	5	91	86	2.40	4	.11	21.5
Rome		5	26	20		1		20.0
Saratoga Springs		5	60	73		0		
Schenectady	93,200	5	306	265	2.84	2	.02	132.5
Troy	72,300	5	79	134	1.85	1	.01	134.0
Watertown	33,400	5	174	295	8.83	2	.06	147.5
Watervliet		4	14	4		1		4.0
White Plains		5	113	183		1		183.0
North Carolina:								
Asheville		5	102	43		0		
Durham	45,700			1,453	31.79	13	.28	111.8
Gastonia				46		3		15.3
Greensboro	50,300	5	275	911	18.11	7	.14	130.1
New Bern		4	41	93		1		93.0
Raleigh		5	246	626		3		208.7
Rocky Mount		4	192	227		0		
Wilmington	38,400	5	198	341	8.88	7	.18	48.7
Wilson				33		0		
Winston-Salem	77,100	5	337	1,153	14.95	27	.35	42.7
Ohio:								
Alliance		3	18	10		0		
Ashland				5		0		
Ashtabula		5	47	23		0		
Barberton		4	10	14		0		
Bellefontaine		1	8	17		1		17.0
Bucyrus		5	38	3		0		
Cambridge		5	6	4		0		
Campbell		4	16	11		0		
Chillicothe		5	7	4		0		
Cleveland Heights		5	211	128		0		
Coshocton		2	19	12		0		

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WHOOPIING COUGH—Continued

City	Estimated population, July 1, 1927	Average, 1922-1926		1927				
		Number of years	Cases	Cases re- ported	Cases per 1,000 inhab- itants	Deaths regis- tered	Deaths per 1,000 inhab- itants	Cases report- ed for each death regis- tered
Ohio—Continued.								
Cuyahoga Falls.		5	61	32		0		
East Cleveland.		5	203	160		0		
Elyria.		5	69	29		0		
Findlay.		5	86	42		0		
Hamilton.	43,800	4	6	6	0.14	0		
Kenmore.		5	108	30		1		
Lakewood.	62,200	4	87	96	1.54	0		30.0
Lancaster.		4	1	3		0		
Lima.	48,700	5	36	61	1.25	1	0.02	61.0
Lorain.	44,000	5	155	227	5.16	1	.02	227.0
Mansfield.		5	142	36		1		36.0
Martins Ferry.				1		0		
Middletown.		3	12			2		
Newark.		4	47	65		1		32.5
Niles.		4	17	4		0		
Norwood.		5	54	7		0		
Salem.		5	69	51		0		
Sandusky.		5	51	140		0		
Springfield.	71,600	5	142	139	1.94	7	.10	19.9
Staubenville.		4	10	6		0		
Tiffin.		2	131	20		0		
Warren.		3	35	20		0		
Zanesville.		5	7			2		1.0
Oklahoma:								
Sapulpa.		2	11	15		0		
Oregon:								
Salem.		1	55	13		0		
Pennsylvania:								
Altoona.	67,800	5	133	197	2.91	1	.01	197.0
Beaver Falls.		5	10	6		0		
Berwick.		1	50	12		1		12.0
Bethlehem.	66,000	4	73	134	2.03	1	.02	134.0
Braddock.		5	41	8		1		8.0
Bradford.		3	77	118		1		118.0
Butler.		5	76	62		1		62.0
Canonsburg.		3	2	5		0		
Carlisle.		5	34	12		0		
Carnegie.		5	19	28		1		28.0
Charleroi.		4	13	8		0		
Clairton.		4	23	12		1		12.0
Coatesville.		5	21	5		0		
Columbia.		2	3	3				
Connellsville.		5	11	5		0		
Dickson.						1		
Donora.		4	15	6		0		
Duquesne.		4	7	1		0		
Easton.	37,900	4	100	36	.95	0		
Ellwood City.		1	17	28		4		7.0
Farrell.		5	30	18		2		9.0
Greensburg.		3	7	9				
Harrisburg.	85,700	5	178	57	.67	1	.01	57.0
Hazleton.	37,500	5	25	58	1.55	1	.03	58.0
Homestead.		5	24	6				
Jeannette.		5	5	4		0		
Kingston.		4	70	35		0		
Lancaster.	57,700	5	142	278	4.82	1	.02	278.0
Latrobe.		1	35	15		1		15.0
Lebanon.		1	8	3				
Lewistown.		3	17	11		0		
McKeesport.	49,900	5	44	39	.78	2	.04	19.0
Mahanoy City.				1				
Monessen.		5	31	27		1		27.0
New Castle.	51,600	5	36	13	.25			
Norristown.	35,800	5	114	58	1.62	2	.06	29.0
North Braddock.		5	36	5		0		
Oil City.		5	164	165		1		165.0
Phoenixville.		4	36	8				
Plymouth.		3	2	8				
Sharon.		5	38	28		2		14.0
Steelton.		4	10	7				
Swissvale.		5	45	26		0		
Warren.		4	58	56		0		
Washington.		4	104	144		1		144.0
West Chester.		5	37	20		1		20.0
Williamsburg.				1				

WHOOPIING COUGH—Continued

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		Number of years	Cases	Cases re- ported	Cases per 1,000 inhab- itants	Deaths regis- tered	Deaths per 1,000 inhab- itants	Cases report- ed for each death regis- tered
Pennsylvania—Continued.								
Williamsport	43,600	2	46	240	5.50	1		5.0
Windber		2	22	5		1		59.0
Woodlawn		5	42	59				
York	49,600	4	56	26	.52	0		
Rhode Island:								
Cranston	36,600	5	7	5	.14	0		
Westerly		2	5	3				
Woonsocket	52,300					2	0.04	
South Carolina:								
Charleston	75,000	3	38	63	.84	11	.15	5.7
Columbia	50,000	4	47	388	7.76	0		
Greenville		5	94	58		1		58.0
Spartanburg		3	9	67		1		67.0
Sumter		3	9	4		0		
South Dakota:								
Aberdeen		5	78	37				
Watertown				8				
Texas:								
Amarillo		3	82	12		0		
Beaumont	54,400	2	1			5	.09	
Cleburne		1	70	30		0		
Galveston	49,900	5	1			2	.04	
Texarkana		4	9	30		0		
Waco	45,700			1	.02	0		
Utah:								
Ogden	38,300	5	258	98	2.56			
Provo		4	51	41		0		
Vermont:								
Barre		5	27	7		0		
Bennington		3	89	8		1		8.0
Virginia:								
Alexandria		5	10	23		1		23.0
Charlottesville		4	7	33		0		
Danville		5	48	21		2		10.5
Lynchburg	38,600	4	227	102	2.64	0		
Newport News	51,700	5	154	225	4.35	2	.04	112.5
Petersburg	37,100	5	51	158	4.26	10	.27	15.8
Portsmouth	60,700	3	5			9	.15	
Roanoke	63,200	4	52	43	.68	5	.08	8.6
Suffolk		1	4	25		5		5.0
Washington:								
Aberdeen		4	13	1		0		
Everett		4	32			2		
Yakima		5	155	2		0		
West Virginia:								
Bluefield		3	4	41		6		6.8
Charleston	53,400	5	101	111	2.08	1	.02	111.0
Clarksburg		5	281	84		0		
Fairmont		5	48	40		4		10.0
Morgantown		2	14			6		
Wheeling		5	57	82		5		16.4
Wisconsin:								
Beloit		5	134	234		0		
Eau Claire		5	86	21		0		
Fond du Lac		5	27	4		0		
Green Bay		5	49	17	.48	1	.03	17.0
Janesville	35,500	5	70	68		0		
Kenosha	54,600	5	280	145	2.66	1	.02	145.0
La Crosse	30,400	5	116	118	3.88	2	.07	59.0
Madison	48,800	4	283	405	8.30	3	.06	135.0
Manitowoc		4	19	150		0		
Oshkosh	33,200	5	71	14	.42	0		
Racine	71,300	5	296	425	5.96	1	.01	425.0
Sheboygan	34,500	5	24	10	.29	0		
Stevens Point				30		0		
Superior		4	13	3		0		
Waukegan		3	9	38		0		
Wausau		5	81	119		0		
West Allis		5	35	38		0		
Wyoming:								
Casper		1	53	6		0		
Cheyenne		2	38	4		0		

2
TREASURY DEPARTMENT
PUBLIC HEALTH SERVICE
HUGH S. CUMMING, SURGEON GENERAL
MAR 9 1928
DETROIT, MICH.

THE NOTIFIABLE DISEASES

PREVALENCE IN STATES

1927

SUPPLEMENT No. 73
TO THE
PUBLIC HEALTH REPORTS



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1929

THE NOTIFIABLE DISEASES
PREVENTION IN STATES
1957

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THE NOTIFIABLE DISEASES

PREVALENCE DURING 1927 IN STATES

The tables which appear on the following pages have been compiled from data furnished by the health officers of the several States, the District of Columbia, and insular possessions. The data for syphilis and gonorrhea were furnished by the Division of Venereal Diseases of the Public Health Service. The reports of tularaemia and undulant fever received from State health officers have been supplemented by other data received by the Public Health Service.

The following is a list of the diseases included:

Anthrax in man.	Rabies in animals.
Chicken pox.	Rabies in man.
Cholera.	Rocky Mountain spotted fever.
Dengue.	Scarlet fever.
Diphtheria.	Septic sore throat.
Gonorrhea.	Smallpox.
Influenza.	Syphilis.
Lethargic encephalitis.	Tuberculosis (all forms and respiratory system).
Malaria.	Tularaemia.
Measles.	Typhoid fever.
Meningococcus meningitis.	Typhus fever.
Mumps.	Undulant fever.
Pellagra.	Whooping cough.
Plague (human).	Yellow fever.
Pneumonia (all forms).	
Poliomyelitis.	

The following table shows the States (including the District of Columbia and insular possessions) for which morbidity and mortality data were received:

Morbidity	Mortality	Morbidity	Mortality
Alabama.....	Alabama.	Nebraska.....	Nebraska.
Arizona.....	Arizona.	Nevada ¹	Nevada. ¹
Arkansas.....	Arkansas.	New Hampshire.....	New Hampshire.
California.....	California.	New Jersey.....	New Jersey.
Colorado ¹	Colorado.	New Mexico.....	New Mexico.
Connecticut.....	Connecticut.	New York.....	New York.
Delaware.....	Delaware.	North Carolina.....	North Carolina.
District of Columbia.....	District of Columbia.	North Dakota.....	North Dakota.
Florida.....	Florida.	Ohio.....	Ohio.
Georgia.....		Oklahoma.....	Oklahoma.
Idaho.....	Idaho.	Oregon.....	Oregon.
Illinois.....	Illinois.	Pennsylvania.....	Pennsylvania.
Indiana.....	Indiana.	Rhode Island.....	Rhode Island.
Iowa.....	Iowa.	South Carolina.....	South Carolina.
Kansas.....	Kansas.	South Dakota.....	South Dakota.
Kentucky.....	Kentucky.	Tennessee.....	Tennessee.
Louisiana.....	Louisiana.	Texas.....	Texas.
Maine.....	Maine.	Vermont.....	Vermont.
Maryland.....	Maryland.	Virginia.....	Virginia.
Massachusetts.....	Massachusetts.	Washington.....	Washington.
Michigan.....	Michigan.	West Virginia.....	West Virginia.
Minnesota.....	Minnesota.	Wisconsin.....	Wisconsin.
Mississippi.....	Mississippi. ¹	Wyoming.....	Wyoming.
Missouri.....	Missouri.	Hawaii Territory.....	Hawaii Territory.
Montana.....	Montana.	Philippine Islands.....	Philippine Islands.

¹ Data not given by months.

The populations given in the tables and used in computing case and death rates were estimated as of July 1, 1927, by the Bureau of the Census unless otherwise indicated.

For most of the diseases four tables are given: (1) Estimated expectancy, (2) morbidity, (3) mortality, (4) rates.

The estimated expectancy, given in the tables for some of the diseases, is the result of an attempt to ascertain from the experience of recent years how many cases of the disease under consideration might be expected in 1927. In most instances the estimated expectancy is the median number of cases reported by the State for the years 1920 to 1926, inclusive. When several epidemics have occurred during these years, or when for other reasons the median is not satisfactory, epidemic years are excluded, and the estimated expectancy is the mean of the number of cases reported for the non-epidemic years. The aim has been to ascertain how many cases of each disease may reasonably be expected in the absence of epidemics.

The column headed "Number of years" shows the number of years for which data are available for each State.

In comparing the figures for 1927 with the estimated expectancy, or with reports for preceding years, it should be borne in mind that there has been a gradual improvement in the reporting of communicable diseases during the last few years. An increase in the number of cases reported may be due to better reporting of the particular disease rather than to an increase in the number of cases occurring.

A relatively large number of reported cases of a communicable disease, as indicated by a high case rate (and more especially when accompanied by a relatively small number of deaths, as indicated by a low fatality rate), usually means that the health department of that State is active and that the cases of the disease are being well reported by the practicing physicians. It does not necessarily mean that the disease is more prevalent in that State than in other States. A high fatality rate may mean that the disease was unusually virulent in a State, that the physicians did not treat the disease in that State with the success usual elsewhere, or that the practicing physicians did not report all of their cases. On the other hand, an unusually low fatality rate may be due to the fact that the disease in the State was unusually mild, that the physicians treated it with unusual success, that the practicing physicians reported their cases satisfactorily, or that the registration of deaths was incomplete, or the assignment of the causes of death inaccurate.

In some instances comparatively large numbers of cases of diseases reported in certain States may be due to the system of reporting rather than to unusual prevalence of the diseases. For instance, in Mississippi physicians report some diseases monthly to the State health officer, giving the number of cases occurring in their practice during the month. This method of reporting probably is responsible,

in part, at least, for the comparatively large numbers of cases of certain diseases reported in Mississippi.

Tabulations of reported cases and deaths from communicable diseases, similar to the tables here presented, have been issued by the United States Public Health Service for the years 1912 to 1926, inclusive (reprints numbered 163, 208, 298, 345, 426, 505, 551, 643, 681, 791, 879, 974, 1056, 1132, and Supplement No. 67, respectively).

SUMMARY

CHICKEN POX

47 States: ¹	
Cases reported, 1927 (population 118,105,000).....	217, 316
Estimated expectancy, based on years 1922-1926.....	166, 453
Cases per 1,000 inhabitants, 1927.....	1. 84
Cases per 1,000 inhabitants, estimated expectancy.....	1. 47
44 States: ¹	
Deaths registered, 1927 (population 112,751,000).....	151
Deaths per 1,000 inhabitants, 1927.....	0. 001
Cases reported for each death registered, 1927.....	1, 382. 65

DIPHTHERIA

47 States: ¹	
Cases reported, 1927 (population 118,105,000).....	106, 191
Estimated expectancy, based on years 1920-1926.....	134, 777
Cases per 1,000 inhabitants, 1927.....	0. 90
Cases per 1,000 inhabitants, estimated expectancy.....	1. 21
45 States: ¹	
Deaths registered, 1927 (population 114,542,000).....	8, 683
Deaths per 1,000 inhabitants, 1927.....	0. 08
Deaths per 100 cases, 1927.....	8. 30

GONORRHEA

39 States:	
Cases reported, 1927 (population 102,777,000).....	143, 454
Cases per 1,000 inhabitants, 1927.....	1. 40

INFLUENZA

45 States: ¹	
Deaths registered, 1927 (population 114,542,000).....	24, 241
Deaths per 1,000 inhabitants, 1927.....	0. 21

MEASLES

46 States: ¹	
Cases reported, 1927 (population 117,391,000).....	441, 349
Estimated expectancy, based on years 1920-1926.....	334, 105
Cases per 1,000 inhabitants, 1927.....	3. 76
Cases per 1,000 inhabitants, estimated expectancy.....	3. 02
45 States: ¹	
Deaths registered, 1927 (population 114,542,000).....	4, 122
Deaths per 1,000 inhabitants, 1927.....	0. 04
44 States: ¹	
Deaths registered, 1927 (population 113,828,000).....	4, 096
Deaths per 1,000 inhabitants, 1927.....	0. 04
Deaths per 100 cases, 1927.....	0. 94

¹ The District of Columbia is also included.

MUMPS

41 States:		
Cases reported, 1927 (population 102,686,000).....	122,474	
Estimated expectancy, based on years 1922-1926.....	63,288	
Cases per 1,000 inhabitants, 1927.....	1.19	
Cases per 1,000 inhabitants, estimated expectancy.....	0.63	
42 States:		
Deaths registered, 1927 (population 109,131,000).....	100	
Deaths per 1,000 inhabitants, 1927.....	0.001	
38 States:		
Deaths registered, 1927 (population 98,103,000).....	86	
Deaths per 1,000 inhabitants, 1927.....	0.001	
Cases reported for each death registered, 1927.....	1,337.99	

PELLAGRA

18 States: ¹		
Cases reported, 1927 (population 53,282,000).....	22,080	
36 States: ¹		
Deaths registered, 1927 (population 105,800,000).....	5,843	
Deaths per 1,000 inhabitants, 1927.....	0.06	

PNEUMONIA (ALL FORMS)

45 States: ¹		
Deaths registered, 1927 (population 114,542,000).....	92,127	
Deaths per 1,000 inhabitants, 1927.....	0.80	

POLIOMYELITIS

45 States: ¹		
Cases reported, 1927 (population 113,722,000).....	10,151	
Estimated expectancy, based on years 1920-1926.....	3,043	
Cases per 1,000 inhabitants, 1927.....	0.089	
Cases per 1,000 inhabitants, estimated expectancy.....	0.028	
45 States: ¹		
Deaths registered, 1927 (population 114,542,000).....	2,146	
Deaths per 1,000 inhabitants, 1927.....	0.019	
Deaths per 100 cases, 1927.....	20.990	

SCARLET FEVER

47 States: ¹		
Cases reported, 1927 (population 118,105,000).....	208,893	
Estimated expectancy, based on years 1920-1926.....	172,887	
Cases per 1,000 inhabitants, 1927.....	1.77	
Cases per 1,000 inhabitants, estimated expectancy.....	1.55	
45 States: ¹		
Deaths registered, 1927 (population 114,542,000).....	2,374	
Deaths per 1,000 inhabitants, 1927.....	0.02	
Deaths per 100 cases, 1927.....	1.15	

¹ The District of Columbia is also included.

SMALLPOX

46 States: ¹		
Cases reported, 1927 (population 115,567,000).....	36,315	
Estimated expectancy, based on years 1920-1926.....	39,090	
Cases per 1,000 inhabitants, 1927.....	0.31	
Cases per 1,000 inhabitants, estimated expectancy.....	0.36	
45 States: ¹		
Deaths registered, 1927 (population 114,542,000).....	165	
Deaths per 1,000 inhabitants, 1927.....	0.001	
Deaths per 100 cases, 1927.....	0.48	

SYPHILIS

40 States:		
Cases reported, 1927 (population 102,854,000).....	170,322	
Cases per 1,000 inhabitants, 1927.....	1.66	

TUBERCULOSIS (ALL FORMS)

44 States: ¹		
Deaths registered, 1927 (population 114,465,000).....	89,014	
Deaths per 1,000 inhabitants, 1927.....	0.778	

TUBERCULOSIS (RESPIRATORY SYSTEM)

43 States: ¹		
Deaths registered, 1927 (population 110,596,000).....	76,706	
Deaths per 1,000 inhabitants, 1927.....	0.694	

TYPHOID FEVER

46 States: ¹		
Cases reported, 1927 (population 115,680,000).....	34,411	
Estimated expectancy, based on years 1920-1926.....	36,724	
Cases per 1,000 inhabitants, 1927.....	0.30	
Cases per 1,000 inhabitants, estimated expectancy.....	0.34	
45 States: ¹		
Deaths registered, 1927 (population 114,542,000).....	6,480	
Deaths per 1,000 inhabitants, 1927.....	0.06	
Deaths per 100 cases, 1927.....	19.91	

WHOOPIING COUGH

47 States: ¹		
Cases reported, 1927 (population 118,105,000).....	178,455	
Estimated expectancy, based on years 1922-1926.....	146,706	
Cases per 1,000 inhabitants, 1927.....	1.51	
Cases per 1,000 inhabitants, estimated expectancy.....	1.30	
45 States: ¹		
Deaths registered, 1927 (population 114,542,000).....	7,220	
Deaths per 1,000 inhabitants, 1927.....	0.06	
Cases reported for each death registered, 1927.....	24.48	

¹ The District of Columbia is also included.

Anthrax in man—Cases reported, 1927

State	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
Arkansas									3				3
California										1			1
Colorado													14
Connecticut				1					1				2
Delaware	3				1			1	1				6
Georgia	1	1					1						3
Indiana												1	1
Louisiana				1	1				1				3
Maine							1						1
Massachusetts	1			2			1				1		5
Missouri								1					1
Mississippi									2	2			4
New Jersey	2	1		1				1		1			6
New York	1	2	1		2	1			1	4	1		13
Oklahoma		1					1						2
Oregon											1		1
Pennsylvania	1		2	1	2		1		1	1	1	2	12
South Dakota				1									1
Tennessee				1						1			2
Texas									1	2			3

¹ Month not given.*Anthrax in man—Deaths registered, 1927*

State	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
Alabama										1			1
Arkansas										2			2
Maine										1			1
Massachusetts					1								1
Michigan		1							1				2
Missouri							1						1
New York	1									2			3
Pennsylvania			2				1					1	4
Rhode Island						1							1
Texas					1			1		1			3

Chicken pox—Monthly estimated expectancy based on data which are available for the years 1922-1926, inclusive

State	Number of years included	January	February	March	April	May	June	July	August	September	October	November	December	Total
Alabama	5	300	211	266	210	180	68	21	11	17	11	48	140	1,483
Arizona	5	38	19	31	31	15	9	3	1	2	7	8	30	194
Arkansas	5	164	121	124	107	71	45	24	33	13	32	55	89	878
California	5	1,231	1,662	1,676	1,200	995	624	272	134	155	447	846	1,211	10,453
Colorado	5	257	236	215	161	186	123	59	15	17	80	206	250	1,805
Connecticut	5	496	349	245	175	200	225	95	16	16	115	257	412	2,601
Delaware	5	47	20	17	12	11	7	3		1	10	12	19	159
District of Columbia	5	179	150	161	123	97	88	25	5	6	14	88	156	1,092
Florida	5	39	53	80	79	69	22	3	4	3	2	4	26	384
Georgia	5	104	115	163	115	54	52	7	8	8	14	30	78	748
Idaho	5	62	43	33	19	25	16	7	9	6	24	89	85	418
Illinois	5	1,945	1,477	1,471	925	1,036	941	327	133	118	652	1,651	1,984	12,660
Indiana	3	401	450	364	261	272	232	50	25	13	216	473	690	3,447
Iowa	5	156	79	59	86	62	32	19	6	8	26	132	186	851
Kansas	5	605	410	401	308	257	149	37	12	38	206	469	590	3,482
Kentucky	3	85	65	53	62	34	34	9	11	10	20	56	84	523
Louisiana	5	20	61	47	47	32	7	2			1	7	35	259
Maine	5	137	114	135	74	76	54	39	11	22	66	171	257	1,156
Maryland	5	712	415	427	387	381	276	65	16	25	123	282	534	3,643
Massachusetts	5	1,145	826	738	565	558	601	229	62	83	352	906	1,242	7,307

Chicken pox—Monthly estimated expectancy based on data which are available for the years 1922-1926, inclusive—Continued

State	Number of years included	January	February	March	April	May	June	July	August	September	October	November	December	Total
Michigan.....	5	1,115	689	666	527	565	637	209	85	59	410	975	1,181	7,118
Minnesota.....	5	738	527	594	361	447	427	115	37	53	249	676	807	5,031
Mississippi.....	5	728	967	852	777	484	287	230	228	175	171	342	641	5,882
Missouri.....	5	354	330	273	212	237	140	33	18	20	94	251	384	2,346
Montana.....	5	114	74	63	50	43	32	15	7	17	121	158	101	795
Nebraska.....	5	135	123	82	69	85	80	15	4	13	41	108	171	926
Nevada.....	4	17	8	8	8	4	4	2	1	6	13	11	83	139
New Hampshire.....	5	16	11	6	4	12	5	2	1	2	6	27	48	139
New Jersey.....	5	1,077	704	664	645	699	632	195	55	60	272	747	1,075	6,825
New Mexico.....	5	92	82	53	62	28	15	5	2	3	13	58	75	488
New York.....	5	2,716	2,053	1,914	1,465	1,753	1,757	763	290	234	869	2,232	2,916	18,962
North Carolina.....	5	660	855	865	520	368	198	63	31	28	80	377	593	4,638
North Dakota.....	5	70	51	72	29	41	24	15	9	6	53	55	101	526
Ohio.....	5	1,635	1,171	1,053	722	830	818	320	113	120	684	1,935	2,258	11,659
Oklahoma.....	5	168	70	104	100	68	55	14	1	1	11	22	81	695
Oregon.....	5	139	78	82	93	95	66	40	13	22	83	139	129	979
Pennsylvania.....	5	3,004	2,511	2,099	1,434	1,317	1,172	442	153	223	1,136	3,093	3,580	20,164
Rhode Island.....	5	46	41	21	28	15	14	7	4	3	17	39	54	289
South Carolina.....	3	52	43	85	56	33	25	4	1	6	29	34	368	618
South Dakota.....	5	105	72	57	49	46	24	12	7	10	22	109	105	618
Tennessee.....	5	254	306	200	207	190	83	41	23	23	34	161	158	1,680
Texas.....	5	150	288	319	293	245	153	32	18	5	12	30	172	1,717
Vermont.....	5	224	181	97	95	89	94	41	23	26	100	209	223	1,402
Virginia.....	5	953	832	832	719	622	325	119	43	62	164	582	863	6,116
Washington.....	5	414	391	309	351	337	260	115	50	63	278	518	532	3,616
West Virginia.....	5	219	173	192	167	116	84	26	10	20	106	251	312	1,678
Wisconsin.....	5	1,152	714	781	707	555	559	277	96	86	362	1,038	1,391	7,718
Wyoming.....	5	53	43	29	32	38	29	9	2	9	49	89	70	452

Chicken pox—Cases reported, 1927

State	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
Alabama.....	343	222	149	201	82	65	15	7	8	25	81	142	1,340
Arizona.....	57	108	107	73	33	5	8	-----	4	11	40	29	475
Arkansas.....	190	209	170	120	66	132	52	36	48	45	136	99	1,303
California.....	2,140	3,096	3,483	2,107	1,607	1,222	367	207	218	640	1,346	1,116	17,549
Connecticut.....	503	437	501	285	502	469	157	50	33	220	525	428	4,110
Delaware.....	12	10	21	21	10	12	2	5	-----	3	8	20	124
District of Columbia.....	278	262	313	224	134	52	17	8	7	22	63	107	1,487
Florida.....	143	207	261	243	96	19	3	8	2	1	14	55	1,052
Georgia.....	171	279	220	230	99	44	18	4	4	19	47	111	1,246
Idaho.....	141	57	36	58	34	20	11	7	6	52	107	105	634
Illinois.....	2,117	1,630	1,649	1,174	1,058	873	422	188	204	563	1,402	1,477	12,757
Indiana.....	818	630	736	731	247	236	68	15	25	102	272	322	4,202
Iowa.....	252	235	224	170	111	92	39	12	11	76	180	206	1,608
Kansas.....	848	700	578	437	328	221	44	24	52	273	715	905	5,125
Kentucky.....	157	169	108	77	84	39	8	7	10	12	71	180	922
Louisiana.....	90	78	51	49	19	19	1	3	1	9	56	20	396
Maine.....	342	201	131	124	55	59	44	16	5	92	154	227	1,450
Maryland.....	713	627	613	437	379	299	123	18	45	124	378	507	4,263
Massachusetts.....	1,729	1,244	1,167	971	954	874	423	72	78	412	958	1,045	9,927
Michigan.....	1,234	1,123	1,560	1,016	1,175	820	380	147	95	197	659	786	9,192
Minnesota.....	1,155	691	774	643	737	775	321	55	57	291	670	561	6,730
Mississippi.....	935	842	933	705	553	249	155	310	167	250	615	656	6,417
Missouri.....	570	524	387	373	231	94	36	10	17	145	263	500	3,150
Montana.....	102	122	126	114	66	43	23	9	22	92	167	75	961
Nebraska.....	237	254	194	252	63	49	30	12	10	80	186	502	1,869
New Hampshire.....	15	7	11	13	27	22	7	-----	4	10	12	8	136
New Jersey.....	1,526	1,283	1,574	1,304	1,282	1,227	408	65	90	342	740	759	10,600
New Mexico.....	160	208	181	134	30	44	9	1	4	11	40	51	873
New York.....	3,590	3,151	3,471	2,698	2,426	2,550	1,249	322	217	865	1,846	2,550	24,635
North Carolina.....	860	865	754	498	431	247	58	30	28	98	351	598	4,818

¹ Includes 47 cases for which month is not given.

Chicken pox—Cases reported, 1927—Continued

Chicken pox—Cases reported, deaths registered, and indicated morbidity and mortality rates, 1927; estimated expectancy and indicated annual rates based on years 1922-1926

State	Estimated population, July 1, 1927	Estimated expectancy			1927				
		Number of years	Cases	Cases per 1,000 inhabitants	Cases reported	Cases per 1,000 inhabitants	Deaths registered	Deaths per 1,000 inhabitants	Cases reported for each death registered
Alabama.....	2,549,000	5	1,483	0.60	1,340	0.53	3	0.00	446.7
Arizona.....	459,000	5	194	.47	475	1.03	2	.00	237.5
Arkansas.....	1,923,000	5	878	.47	1,303	.68	0	.00	
California.....	4,433,000	5	10,453	2.58	17,549	3.96	7	.00	2,507.0
Colorado.....	1,074,000	5	1,805	1.76	2,188	2.04	0	.00	
Connecticut.....	1,636,000	5	2,601	1.69	4,110	2.51	3	.00	1,370.0
Delaware.....	243,000	5	159	.68	124	.51	1	.00	124.0
District of Columbia.....	540,000	5	1,092	2.18	1,487	2.75	0	.00	
Florida.....	1,363,000	5	384	.31	1,052	.77	1	.00	1,052.0
Georgia.....	3,171,000	5	748	.24	1,246	.39			
Idaho.....	534,000	5	418	.84	634	1.19	0	.00	
Illinois.....	7,296,000	5	12,660	1.81	12,757	1.75	18	.00	708.7
Indiana.....	3,150,000	3	3,447	1.12	4,202	1.33	0	.00	
Iowa.....	2,425,000	5	3,351	.35	1,608	.68	3	.00	538.0
Kansas.....	1,828,000	5	3,482	1.93	5,125	2.80	6	.00	854.2
Kentucky.....	2,538,000	3	523	.21	922	.36	0	.00	
Louisiana.....	1,934,000	5	259	.14	396	.20	1	.00	396.0
Maine.....	793,000	5	1,156	1.48	1,450	1.83	1	.00	1,450.0
Maryland.....	1,597,000	5	3,643	2.36	4,263	2.67	3	.00	1,421.0
Massachusetts.....	4,242,000	5	7,307	1.78	9,927	2.34	8	.00	1,240.9
Michigan.....	4,490,000	5	7,118	1.70	9,192	2.05	0	.00	
Minnesota.....	2,686,000	5	5,031	1.96	6,730	2.51	7	.00	961.4
Mississippi.....	1,791,000	5	5,882	3.28	6,417	3.58		.00	787.5
Missouri.....	3,510,000	5	2,346	.68	3,150	.90	4	.00	787.5
Montana.....	714,000	5	795	1.22	961	1.35	1	.00	961.0
Nebraska.....	1,396,000	5	926	.68	1,869	1.34	2	.00	934.5
Nevada.....	177,000	4	83	1.08	87	1.13	0	.00	
New Hampshire.....	455,000	5	139	.31	136	.30	0	.00	
New Jersey.....	3,749,000	5	6,825	1.94	10,600	2.83	11	.00	963.6
New Mexico.....	392,000	5	488	1.28	873	2.23		.00	
New York.....	11,423,000	5	18,962	1.72	24,635	2.16	18	.00	1,368.6
North Carolina.....	2,897,000	5	4,638	1.68	4,818	1.66	5	.00	963.6
North Dakota.....	641,000	5	526	.82	811	1.27	0	.00	
Ohio.....	6,710,000	5	11,659	1.84	15,289	2.28	14	.00	1,092.1
Oklahoma.....	2,384,000	5	695	.31	1,022	.43	1	.00	1,022.0
Oregon.....	890,000	5	979	1.15	1,483	1.67	0	.00	
Pennsylvania.....	9,730,000	5	20,164	2.16	24,950	2.56	16	.00	1,559.4
Rhode Island.....	704,000	5	289	.43	557	.79	3	.00	185.7
South Carolina.....	1,845,000	3	368	.21	2,889	1.57		.00	
South Dakota.....	696,000	5	618	.92	571	.82	1	.00	571.0
Tennessee.....	2,485,000	5	1,680	.69	1,858	.75	0	.00	
Texas.....	5,397,000	5	1,717	.34	1,906	.35	0	.00	
Vermont.....	1352,000	5	1,402	3.98	1,678	4.77	1	.00	1,678.0
Virginia.....	2,546,000	5	6,116	2.49	6,603	2.59	0	.00	
Washington.....	1,562,000	5	3,618	2.44	3,871	2.48	3	.00	1,290.3
West Virginia.....	1,696,000	5	1,676	1.04	2,040	1.20	6	.00	340.0
Wisconsin.....	2,918,000	5	7,718	2.75	9,737	3.34	1	.00	9,737.0
Wyoming.....	241,000	5	452	2.03	425	1.76	0	.00	

¹ Population estimated, Jan. 1, 1920.

² Population, State Census, 1925.

Cholera

No cases of cholera, or deaths from this disease, were reported in the United States during 1927.

Dengue—Cases reported, 1927

State	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
Alabama.....	3	1	-----	3	1	4	6	3	4	5	4	-----	34
Florida.....	1	1	1	1	-----	-----	-----	-----	1	1	-----	-----	4
Georgia.....	-----	-----	-----	-----	16	7	1	4	3	7	3	2	43
Louisiana.....	-----	-----	-----	2	-----	-----	-----	-----	-----	-----	-----	-----	2
Mississippi.....	13	7	4	7	3	8	12	44	18	11	12	18	157
South Carolina.....	11	4	4	19	35	11	22	36	7	54	22	1	226
Texas.....	3	2	-----	5	3	2	1	4	-----	6	-----	1	27

Dengue—Deaths registered, 1927

State	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
Florida.....			1							7	1		3
Pennsylvania.....							1						1
Vermont.....											1		1

Diphtheria—Monthly estimated expectancy based on data which are available for the years 1920-1926, inclusive

State	Number of years included	January	February	March	April	May	June	July	August	September	October	November	December	Total
Alabama.....	7	85	60	48	30	37	30	44	97	199	311	217	135	1,293
Arizona.....	7	13	12	10	11	7	5	3	5	6	14	16	20	122
Arkansas.....	7	54	31	22	14	17	11	8	21	39	110	105	67	499
California.....	7	680	541	626	559	576	579	400	511	503	784	787	881	7,427
Colorado.....	7	127	128	139	113	125	99	86	85	149	155	157	151	1,514
Connecticut.....	7	299	229	259	178	152	136	127	97	115	203	264	305	2,364
Delaware.....	7	24	11	13	10	14	6	5	8	10	25	19	13	158
District of Columbia.....	7	106	83	50	39	40	30	18	20	35	74	117	96	708
Florida.....	7	72	55	39	33	28	22	50	55	79	100	127	88	748
Georgia.....	7	68	54	48	43	34	31	36	70	158	340	265	120	1,267
Idaho.....	7	15	18	5	13	15	10	8	13	27	28	32	28	212
Illinois.....	7	1,139	938	1,029	727	671	532	392	411	607	1,114	1,318	1,118	9,996
Indiana.....	7	300	276	222	150	138	110	97	102	163	456	483	515	3,012
Iowa.....	7	149	89	75	53	70	58	51	60	97	228	193	173	1,296
Kansas.....	7	220	175	135	109	100	61	62	105	187	424	450	341	2,369
Kentucky.....	3	94	92	52	74	26	19	13	39	45	101	147	93	795
Louisiana.....	7	109	86	64	51	39	32	37	49	76	114	162	115	934
Maine.....	7	51	38	35	29	29	30	30	31	32	49	84	59	497
Maryland.....	7	306	177	175	137	115	87	87	88	127	278	257	246	2,080
Massachusetts.....	7	905	655	629	576	558	532	412	428	415	744	839	943	7,636
Michigan.....	7	912	632	636	473	467	434	333	327	567	1,002	1,021	945	7,749
Minnesota.....	7	338	266	246	229	260	188	171	215	356	526	505	459	3,759
Mississippi.....	7	126	86	70	48	47	34	60	137	348	417	290	171	1,834
Missouri.....	5	376	357	290	259	267	176	117	124	159	386	441	331	3,283
Montana.....	7	44	33	45	36	25	18	17	19	29	26	54	39	385
Nebraska.....	7	85	59	61	54	32	26	28	35	90	171	149	110	900
Nevada.....	5	2	1	1		1	1	1	2		2	1	1	13
New Hampshire.....	7	30	32	22	24	15	15	13	6	19	37	49	47	309
New Jersey.....	7	795	480	484	437	397	349	288	247	351	569	607	684	5,688
New Mexico.....	7	80	73	49	51	79	45	65	37	45	68	54	35	681
New York.....	7	1,815	1,523	1,438	1,576	1,572	1,463	1,047	744	788	1,475	1,876	1,774	17,091
North Carolina.....	7	206	140	127	99	82	73	114	311	817	1,110	708	379	4,166
North Dakota.....	7	57	54	57	30	21	20	22	28	22	43	38	73	465
Ohio.....	7	971	725	628	431	376	335	302	348	709	1,462	1,397	1,246	8,930
Oklahoma.....	6	95	53	77	42	35	20	15	31	61	153	147	139	868
Oregon.....	7	131	90	87	88	70	59	58	52	53	138	153	160	1,139
Pennsylvania.....	7	1,661	1,355	1,280	1,019	898	743	707	685	1,132	1,907	2,164	2,016	15,567
Rhode Island.....	7	105	81	56	66	56	48	45	31	53	78	91	104	814
South Carolina.....	6	170	117	80	97	77	84	79	187	385	533	400	213	2,422
South Dakota.....	7	43	35	42	25	21	23	23	22	28	48	88	45	443
Tennessee.....	6	73	63	44	38	26	12	19	70	143	278	139	109	1,014
Texas.....	7	183	152	145	97	89	58	76	73	121	152	278	273	1,697
Vermont.....	7	20	18	15	17	18	16	17	13	20	35	30	25	244
Virginia.....	7	316	232	163	104	90	71	99	199	414	930	796	533	3,947
Washington.....	7	143	118	78	95	92	79	76	68	101	160	148	149	1,307
West Virginia.....	7	231	137	109	75	61	58	56	73	139	356	276	159	1,730
Wisconsin.....	7	367	248	239	203	178	161	167	177	186	404	491	540	3,331
Wyoming.....	7	7	11	5	7	6	3	4	3	9	6	7	7	74

Diphtheria—Cases reported, 1927

State	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
Alabama.....	230	161	139	115	70	65	72	104	251	551	434	335	2,527
Arizona.....	14	12	10	13	5	16	6	4	4	50	74	41	249
Arkansas.....	58	24	28	19	11	17	8	13	52	90	171	81	572
California.....	700	596	749	492	500	511	287	387	339	496	742	613	6,412
Connecticut.....	139	128	123	115	103	138	77	80	78	142	136	196	1,455
Delaware.....	18	5	7	7	5	6	4	2	7	4	12	17	94
District of Columbia.....	85	104	118	111	79	54	46	39	46	92	92	63	929
Florida.....	179	121	121	87	47	56	21	49	74	106	161	74	1,096
Georgia.....	159	90	61	51	30	33	53	83	182	268	169	136	1,315
Idaho.....	17	7	23	13	9	7	4	7	6	11	15	-----	119
Illinois.....	568	532	540	457	466	475	377	325	314	587	787	844	6,272
Indiana.....	349	172	131	152	81	98	89	72	60	226	245	216	1,893
Iowa.....	139	101	93	118	84	63	62	42	80	59	96	78	1,015
Kansas.....	102	76	57	47	28	34	35	37	146	212	156	142	1,072
Kentucky.....	120	54	46	42	38	9	20	31	45	89	110	114	718
Louisiana.....	102	89	101	114	79	60	58	78	145	167	258	155	1,406
Maine.....	12	9	15	22	27	10	13	31	17	11	16	41	224
Maryland.....	269	204	212	180	198	231	150	107	117	141	178	172	2,159
Massachusetts.....	461	424	429	377	336	388	264	216	291	432	542	590	4,750
Michigan.....	496	485	441	406	368	334	251	212	229	403	493	457	4,575
Minnesota.....	182	162	149	156	142	100	92	120	177	251	240	160	1,931
Mississippi.....	97	56	61	48	27	38	43	105	192	421	351	185	1,630
Missouri.....	311	229	193	243	166	106	92	87	144	334	372	332	2,609
Montana.....	19	28	24	13	11	6	7	21	11	15	11	16	182
Nebraska.....	28	20	29	25	12	37	20	15	14	60	73	121	454
New Hampshire.....	10	6	13	11	6	2	11	3	8	18	16	6	110
New Jersey.....	519	436	480	487	489	432	305	275	332	567	745	715	5,782
New Mexico.....	17	12	32	12	20	10	8	25	25	37	33	27	258
New York.....	1,452	1,583	1,822	1,992	2,039	1,862	1,141	681	677	1,022	1,512	1,638	17,421
North Carolina.....	190	123	125	64	52	53	62	232	455	717	615	346	3,034
North Dakota.....	25	10	21	29	12	8	9	15	13	41	15	18	216
Ohio.....	789	692	621	478	470	388	291	323	420	779	986	900	7,137
Oklahoma.....	154	85	61	92	17	24	32	79	274	609	392	309	2,128
Oregon.....	75	63	61	53	42	24	41	24	23	57	81	65	609
Pennsylvania.....	930	806	883	771	729	645	703	449	617	916	1,187	1,303	9,939
Rhode Island.....	63	48	53	32	46	48	31	34	31	61	123	106	676
South Carolina.....	125	91	60	67	45	23	59	86	203	404	308	194	1,665
South Dakota.....	21	14	17	20	13	13	18	13	12	23	25	7	196
Tennessee.....	151	72	50	50	26	21	54	69	163	289	247	167	1,359
Texas.....	252	214	165	99	93	69	64	82	150	296	416	487	2,387
Vermont.....	10	5	6	9	6	5	5	12	8	14	10	11	101
Virginia.....	261	168	127	103	84	58	83	138	220	514	569	292	2,617
Washington.....	122	103	80	78	46	45	65	71	63	79	179	75	1,006
West Virginia.....	113	107	55	77	44	43	50	53	75	125	99	117	958
Wisconsin.....	218	171	179	157	125	113	142	80	145	143	149	240	1,862
Wyoming.....	18	7	3	6	5	1	2	1	5	12	8	2	70

¹ Includes 6 cases for which month is not given.

Diphtheria—Deaths registered, 1927

State	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
Alabama.....	16	13	4	6	3	4	8	22	46	55	36	36	249
Arizona.....	1	1	3	2	2	1	1	1	1	4	2	9	23
Arkansas.....	14	10	6	5	7	2	5	7	24	34	25	26	165
California.....	30	26	25	45	27	20	21	15	13	26	23	35	306
Colorado.....	6	5	9	7	6	14	4	7	10	8	9	9	94
Connecticut.....	8	9	5	6	5	13	7	8	3	9	8	13	94
Delaware.....	2	1	2	2	2	1	2	1	1	4	1	1	11
District of Columbia.....	3	3	4	4	2	1	2	1	1	2	2	2	24
Florida.....	14	8	6	4	6	4	3	4	8	13	14	9	93
Idaho.....	1	1	5	2	1	1	3	5	2	1	3	24	24
Illinois.....	62	40	42	53	45	50	48	45	34	51	79	99	648
Indiana.....	21	19	20	12	12	14	10	13	11	34	30	31	227
Iowa.....	13	15	4	10	3	12	6	7	10	16	9	9	114
Kansas.....	5	3	3	3	2	4	1	3	8	11	17	15	75
Kentucky.....	34	21	11	5	12	6	7	9	25	35	37	30	232
Louisiana.....	14	9	19	19	14	11	16	5	12	30	24	24	197
Maine.....	1	1	1	1	5	1	5	3	1	2	5	24	24
Maryland.....	17	10	13	11	11	12	9	4	9	5	3	13	117
Massachusetts.....	25	24	27	26	13	21	18	16	13	21	29	30	263
Michigan.....	51	45	67	52	39	37	33	29	36	39	42	47	517
Minnesota.....	13	5	5	10	5	6	4	7	5	5	12	5	82
Missouri.....	25	17	19	11	13	2	6	12	12	35	34	32	218
Montana.....	4	3	1	1	3	2	1	2	3	2	1	2	23
Nebraska.....	2	3	3	3	1	5	3	2	5	4	6	9	46
New Hampshire.....	2	2	1	2	2	2	1	1	1	7	2	18	18
New Jersey.....	34	17	38	30	33	31	25	25	27	45	60	52	417
New York.....	85	80	86	112	104	105	70	46	43	62	91	98	1 983
North Carolina.....	36	18	20	8	8	9	5	14	21	48	45	40	272
North Dakota.....	3	1	2	2	3	2	3	1	2	2	2	2	21
Ohio.....	68	41	42	37	33	28	25	24	38	50	58	65	509
Oklahoma.....	34	25	17	5	9	8	5	21	42	60	54	62	342
Oregon.....	4	4	4	3	2	2	2	2	2	5	6	6	38
Pennsylvania.....	79	74	77	83	64	63	50	34	33	77	99	92	825
Rhode Island.....	7	2	6	3	10	6	2	1	2	5	11	7	62
South Carolina.....	9	5	4	4	2	1	1	9	16	31	30	21	132
South Dakota.....	1	2	2	2	1	4	3	2	2	4	1	20	20
Tennessee.....	16	16	9	3	4	3	6	7	29	33	30	35	191
Texas.....	26	20	21	23	10	11	22	14	35	35	33	74	324
Vermont.....	1	1	1	2	2	2	1	1	1	1	1	2	9
Virginia.....	20	19	10	4	6	5	4	4	15	14	25	27	153
Washington.....	7	6	3	3	4	4	4	5	6	6	4	3	51
West Virginia.....	19	11	9	14	3	2	1	5	8	21	20	23	136
Wisconsin.....	13	9	11	9	12	3	6	10	11	9	15	19	127
Wyoming.....	1	2	1	1	1	1	1	1	1	2	1	1	8

¹ Includes 1 death for which month is not given.

Ore.
Pen.
Rho.
Sou.
Sou.

Ten.
Tex.
Ver.
Virg.

Was.
West.
Wisc.
Wyo.

Diphtheria—Cases reported, deaths registered, and indicated morbidity, mortality, and fatality rates, 1927; estimated expectancy and indicated annual rates based on years 1920–1926

State	Estimated population, July 1, 1927	Estimated expectancy			1927				
		Number of years	Cases	Cases per 1,000 inhabitants	Cases reported	Cases per 1,000 inhabitants	Deaths registered	Deaths per 1,000 inhabitants	Fatalities per 100 cases
Alabama.....	2,549,000	7	1,293	0.53	2,527	0.99	249	0.10	9.9
Arizona.....	459,000	7	122	.31	249	.54	23	.05	9.2
Arkansas.....	1,923,000	7	499	.27	572	.30	165	.09	28.8
California.....	4,433,000	7	7,427	1.91	6,412	1.45	306	.07	4.8
Colorado.....	1,074,000	7	1,514	1.51	979	.91	94	.09	9.6
Connecticut.....	1,636,000	7	2,364	1.58	1,455	.89	94	.06	6.5
Delaware.....	243,000	7	158	.68	94	.39	11	.05	11.7
District of Columbia.....	540,000	7	708	1.46	929	1.72	24	.04	2.6
Florida.....	1,363,000	7	748	.64	1,096	.80	93	.07	8.5
Georgia.....	3,171,000	7	1,267	.42	1,315	.41			
Idaho.....	534,000	7	212	.44	119	.22	24	.04	20.2
Illinois.....	7,296,000	7	9,996	1.46	6,272	.86	648	.09	10.3
Indiana.....	3,150,000	7	3,012	.99	1,893	.60	227	.07	12.0
Iowa.....	2,425,000	7	1,296	.54	1,015	.42	114	.05	11.2
Kansas.....	1,828,000	7	2,369	1.32	1,072	.59	75	.04	7.0
Kentucky.....	2,538,000	3	795	.32	718	.28	232	.09	32.3
Louisiana.....	1,934,000	7	934	.50	1,406	.73	197	.10	14.0
Maine.....	793,000	7	497	.64	224	.28	24	.03	10.7
Maryland.....	1,597,000	7	2,080	1.37	2,159	1.35	117	.07	5.4
Massachusetts.....	4,242,000	7	7,636	1.89	4,750	1.12	263	.06	5.5
Michigan.....	4,490,000	7	7,749	1.92	4,575	1.02	517	.12	11.3
Minnesota.....	2,686,000	7	3,759	1.49	1,931	.72	82	.03	4.2
Mississippi.....	¹ 1,791,000	7	1,834	1.02	1,630	.91	177	.10	10.9
Missouri.....	3,510,000	5	3,283	.95	2,609	.74	218	.06	8.4
Montana.....	714,000	7	385	.62	182	.25	23	.03	12.6
Nebraska.....	1,396,000	7	900	.67	454	.33	46	.03	10.1
Nevada.....	¹ 77,000	5	13	.17	23	.30	2	.03	8.7
New Hampshire.....	455,000	7	309	.69	110	.24	18	.04	16.4
New Jersey.....	3,749,000	7	5,688	1.66	5,782	1.54	417	.11	7.2
New Mexico.....	392,000	7	681	1.82	258	.66			
New York.....	11,423,000	7	17,091	1.57	17,421	1.53	983	.09	5.6
North Carolina.....	2,897,000	7	4,166	1.54	3,034	1.05	272	.09	9.0
North Dakota.....	² 641,000	7	465	.72	216	.34	21	.03	9.7
Ohio.....	6,710,000	7	8,930	1.44	7,137	1.06	509	.08	7.1
Oklahoma.....	2,384,000	6	868	.40	2,128	.89	342	.14	16.1
Oregon.....	890,000	7	1,139	1.37	609	.68	38	.04	6.2
Pennsylvania.....	9,730,000	7	15,567	1.70	9,939	1.02	825	.08	8.3
Rhode Island.....	704,000	7	814	1.24	676	.96	62	.09	9.2
South Carolina.....	1,845,000	6	2,422	1.38	1,665	.90	132	.07	7.9
South Dakota.....	696,000	7	443	.67	196	.28	20	.03	10.2
Tennessee.....	2,485,000	6	1,014	.42	1,359	.55	191	.08	14.1
Texas.....	5,397,000	7	1,697	.34	2,387	.44	324	.06	13.6
Vermont.....	¹ 352,000	7	244	.69	101	.29	9	.03	8.9
Virginia.....	2,546,000	7	3,947	1.63	2,617	1.03	153	.06	5.8
Washington.....	1,562,000	7	1,307	.90	1,006	.64	51	.03	5.1
West Virginia.....	1,696,000	7	1,730	1.10	958	.66	136	.08	14.2
Wisconsin.....	2,918,000	7	3,331	1.21	1,862	.64	127	.04	6.8
Wyoming.....	241,000	7	74	.34	70	.29	8	.03	11.4

¹ Population estimated, Jan. 1, 1920.² Population, State census, 1925.

Gonorrhea—Cases reported, 1927

State	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
Alabama.....	271	209	165	186	240	205	233	233	218	281	192	288	2,721
Arizona.....	10	17	16	4	5	8	7	1	4	15	9	6	102
Arkansas.....	117	148	139	174	142	117	147	174	128	126	142	142	1,696
California.....	601	683	656	571	645	685	614	830	617	666	753	534	7,855
Colorado.....	109	75	94	63	114	131	138	111	121	134	99	94	1,283
Connecticut.....	115	88	151	97	122	188	74	152	91	270	137	166	1,651
Delaware.....	69	39	58	60	47	41	35	55	51	42	53	33	583
Florida.....	143	180	155	96	96	125	127	145	151	92	104	61	1,473
Georgia.....	377	331	376	297	304	248	277	254	249	397	210	331	3,651
Idaho.....	36	17	19	6	27	34	16	19	17	23	29	18	261
Illinois.....	1,739	1,726	1,941	1,649	1,569	1,736	1,598	1,810	2,155	1,939	1,933	1,547	21,342
Indiana.....	198	162	167	118	164	153	124	175	150	130	143	98	1,782
Iowa.....	153	82	158	170	88	121	129	113	145	184	112	179	1,634
Kansas.....	100	59	49	42	59	92	76	109	104	76	55	100	921
Kentucky.....	349	574	361	260	214	205	299	264	182	261	231	178	3,348
Louisiana.....	208	234	221	295	255	252	216	279	254	170	192	157	2,733
Maine.....	30	24	33	24	35	46	45	54	38	38	21	31	419
Maryland.....	179	148	134	158	145	152	147	180	123	151	118	118	1,753
Massachusetts.....	410	270	323	236	279	315	344	377	372	412	411	372	4,121
Michigan.....	705	717	879	729	674	822	645	940	771	1,057	725	654	9,318
Minnesota.....	438	344	405	363	417	377	305	255	337	276	.....	.....	13,517
Mississippi.....	1,676	1,752	1,765	1,662	1,753	1,691	1,942	2,004	1,929	2,074	1,896	1,828	21,972
Missouri.....	211	267	259	254	253	182	185	237	242	210	181	208	2,689
Montana.....	17	8	6	5	13	.....	.....	.....	.....	.....	.....	.....	249
Nebraska.....	137	106	225	127	122	209	161	220	179	141	176	216	2,019
New Hampshire.....	16	14	9	14	16	23	12	11	9	22	8	10	164
New Jersey.....	281	261	348	244	266	416	345	365	405	428	277	350	3,989
New Mexico.....	27	22	25	.....	.....	.....	.....	.....	.....	.....	.....	.....	74
New York.....	675	592	958	1,246	909	1,003	904	825	1,439	1,268	1,249	1,208	12,276
North Carolina.....	162	152	137	158	226	171	.....	.....	.....	.....	.....	.....	1,006
North Dakota.....	51	36	57	48	51	57	88	99	92	78	89	63	809
Ohio.....	418	320	367	332	276	347	325	487	380	381	369	370	4,372
Oklahoma.....	.....	.....	27	21	18	29	23	28	31	27	24	28	256
Oregon.....	126	63	83	112	125	125	173	126	128	98	105	145	1,409
Pennsylvania.....	233	207	257	189	202	211	177	244	216	242	181	160	2,519
Rhode Island.....	44	29	59	28	42	65	31	40	47	30	45	85	545
South Carolina.....	1,052	859	961	1,099	831	734	1,020	1,007	1,004	1,181	961	951	11,660
South Dakota.....	38	49	40	28	10	40	34	46	58	35	20	38	436
Tennessee.....	169	271	195	166	170	135	153	235	144	221	119	117	2,095
Texas.....	241	814	343	748	814	343	.....	.....	.....	.....	.....	.....	3,303
Vermont.....	27	31	26	27	32	27	45	37	41	36	34	33	396
Virginia.....	48	40	55	32	60	44	78	52	45	50	49	50	603
Washington.....	276	220	233	202	207	201	151	241	255	225	269	206	2,686
West Virginia.....	226	152	167	114	162	141	135	132	130	121	83	100	1,663
Wisconsin.....	182	232	231	148	176	176	209	271	227	237	255	161	2,505

¹ Estimated.² For 10 months.³ For 5 months.⁴ For 3 months.⁵ For 6 months.⁶ From reports of clinics and institutions.⁷ For 10 months; from clinic reports.

NOTE.—District of Columbia, Nevada, Utah, and Wyoming did not report in 1927.

Gonorrhea—Cases reported and indicated morbidity rates, 1927

State	Estimated population, July 1, 1927	Total cases reported, 1927	Cases per 1,000 inhabitants	State	Estimated population, July 1, 1927	Total cases reported, 1927	Cases per 1,000 inhabitants
Alabama.....	2,549,000	2,721	1.07	Mississippi.....	¹ 1,791,000	21,972	12.27
Arizona.....	459,000	102	.22	Missouri.....	3,510,000	2,689	.77
Arkansas.....	1,923,000	1,696	.88	Nebraska.....	1,396,000	2,019	1.45
California.....	4,493,000	7,855	1.77	New Hampshire.....	455,000	164	.36
Colorado.....	1,074,000	1,283	1.19	New Jersey.....	3,749,000	3,989	1.06
Connecticut.....	1,636,000	1,651	1.01	New York.....	11,423,000	12,276	1.07
Delaware.....	243,000	583	2.40	North Dakota.....	¹ 641,000	809	1.26
Florida.....	1,363,000	1,473	1.08	Ohio.....	6,710,000	¹ 4,372	.65
Georgia.....	3,171,000	3,651	1.15	Oregon.....	890,000	1,409	1.58
Idaho.....	534,000	261	.49	Pennsylvania.....	9,730,000	2,519	.26
Illinois.....	7,296,000	21,342	2.93	Rhode Island.....	704,000	545	.77
Indiana.....	3,150,000	1,782	.57	South Carolina.....	1,845,000	11,660	6.32
Iowa.....	2,425,000	1,634	.67	South Dakota.....	696,000	436	.63
Kansas.....	1,828,000	921	.50	Tennessee.....	2,485,000	2,095	.84
Kentucky.....	2,538,000	3,348	1.32	Vermont.....	¹ 352,000	396	1.13
Louisiana.....	1,934,000	2,733	1.41	Virginia.....	2,546,000	603	.24
Maine.....	793,000	419	.53	Washington.....	1,562,000	2,686	1.72
Maryland.....	1,597,000	1,753	1.10	West Virginia.....	1,696,000	1,663	.98
Massachusetts.....	4,242,000	4,121	.97	Wisconsin.....	2,918,000	2,505	.86
Michigan.....	4,490,000	9,318	2.06				

¹ Population estimated, Jan. 1, 1920.² Population, State census, 1925.³ From reports of clinics and institutions.*Influenza—Cases reported, 1927*

State	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
Alabama.....	319	344	526	802	165	48	53	48	46	90	226	479	3,146
Arkansas.....	539	428	399	228	189	62	30	46	104	147	313	351	2,836
California.....	172	345	468	141	102	61	30	21	32	79	98	96	1,645
Connecticut.....	97	49	77	21	11	9	5	5	5	11	25	51	306
District of Columbia.....	17	52	48	10	5	4	1	3		2	5	6	153
Florida.....	51	53	97	60	38	61	12	23	7	20	24	35	481
Georgia.....	621	742	1,461	1,049	348	94	102	92	71	171	313	538	5,602
Illinois.....	313	205	222	306	174	130	121	43	30	59	65	161	1,829
Indiana.....	446	219	128	226	63	14	15	37	54	35	62	127	1,426
Louisiana.....	158	102	124	104	66	96	37	46	30	32	68	137	1,000
Maine.....	133	73	104	153	66	28	13	8	8	14	40	150	790
Maryland.....	379	631	1,365	286	75	22	7	22	19	41	113	117	3,077
Massachusetts.....	74	70	89	65	38	16	11	21	20	32	37	42	515
Minnesota.....	40	68	92	102	68	33	18	18	23	38	27	45	581
Mississippi.....	4,591	4,683	5,248	2,664	1,357	896	863	881	1,084	2,032	2,841	4,239	131,506
New Hampshire.....	4	2	2	101	226	73	49	28	48	59	62	135	789
New Jersey.....	142	149	161	104	35	17	4	12	8	23	42	47	744
New Mexico.....	25	9	7	1	1					1		1	45
Oklahoma.....	1,509	939	549	432	165	70	33	34	68	182	171	497	4,649
Oregon.....	347	1,882	715	317	70	24	48	22	36	95	57	110	3,723
Rhode Island.....	25	24	7		4	1			2	5	31	23	122
South Carolina.....	4,762	3,679	6,201	7,691	2,528	714	510	478	813	1,557	1,946	2,978	33,857
Tennessee.....	526	387	822	990	194	59	57	21	66	150	192	400	3,864
Texas.....	757	282	489	166	195	96	82	92	59	195	229	304	2,946
Virginia.....	4,791	5,828	8,994	3,894	1,395	558	485	78	880	1,210	1,882	2,677	33,375
West Virginia.....	232	251	288	260	35	25	7	7	11	31	69	107	1,303
Wisconsin.....	241	353	340	267	183	85	58	42	117	143	107	269	2,205

¹ Includes 127 cases for which month is not given.

Influenza—Deaths registered, 1927

State	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
Alabama.....	99	75	133	110	50	33	22	17	23	36	55	123	776
Arizona.....	21	18	8	15	13	10	1	1	5	5	11	108	504
Arkansas.....	94	76	92	52	42	11	8	13	7	16	36	57	698
California.....	109	95	113	82	46	37	25	24	27	34	33	73	407
Colorado.....	78	49	56	32	34	21	7	12	25	31	30	32	299
Connecticut.....	55	30	52	49	27	11	10	5	11	6	14	29	43
Delaware.....	8	7	4	5	1	2	1	2	2	5	4	4	56
District of Columbia.....	16	23	27	7	7	1	2	2	2	2	2	5	94
Florida.....	35	34	65	28	21	11	6	3	12	16	35	57	323
Idaho.....	2	17	11	10	8	5	5	3	3	2	1	1	65
Illinois.....	219	160	175	108	76	28	19	31	37	50	65	96	1,064
Indiana.....	143	116	116	101	78	38	25	21	35	37	66	64	840
Iowa.....	127	68	67	77	34	27	16	21	21	12	42	44	556
Kansas.....	100	55	95	85	38	20	12	13	16	33	38	51	556
Kentucky.....	121	78	82	83	49	27	27	28	13	42	63	80	693
Louisiana.....	90	70	78	53	33	24	25	28	23	31	57	83	595
Maine.....	43	43	50	56	31	17	12	8	8	10	29	17	324
Maryland.....	48	45	92	51	18	12	5	8	6	10	13	19	327
Massachusetts.....	56	49	42	36	25	17	5	4	12	22	21	34	323
Michigan.....	121	122	122	89	72	50	12	19	30	43	46	56	782
Minnesota.....	46	55	82	79	55	25	11	15	23	30	20	39	480
Missouri.....	167	124	143	91	64	35	26	17	26	47	52	73	865
Montana.....	22	19	25	29	14	8	4	1	2	10	9	5	148
Nebraska.....	68	47	37	41	20	10	13	8	20	24	18	33	339
New Hampshire.....	31	17	26	26	23	11	4	2	4	7	9	11	171
New Jersey.....	73	60	78	73	35	14	2	7	10	16	25	33	426
New York.....	236	189	230	184	107	66	34	27	47	74	82	108	1,386
North Carolina.....	116	103	215	171	140	73	29	18	21	41	72	103	1,102
North Dakota.....	8	5	7	10	5	4	1	5	1	1	3	7	57
Ohio.....	232	187	217	200	116	81	43	39	46	79	108	142	1,490
Oklahoma.....	76	65	80	33	25	12	15	14	13	9	18	23	383
Oregon.....	26	79	56	27	11	8	3	4	7	14	4	12	251
Pennsylvania.....	408	318	376	342	194	86	48	41	76	96	153	216	2,354
Rhode Island.....	17	10	18	16	4	6	1	2	1	3	5	83	291
South Carolina.....	30	34	38	45	23	20	3	6	6	11	25	50	165
South Dakota.....	19	19	22	27	18	10	2	8	11	4	11	14	798
Tennessee.....	85	87	144	127	82	24	16	21	14	24	64	110	608
Texas.....	109	56	103	75	58	31	16	21	13	19	32	73	131
Vermont.....	30	21	12	20	11	9	2	3	1	5	9	8	512
Virginia.....	132	177	267	194	71	18	19	16	19	43	57	85	446
Washington.....	53	112	102	58	31	21	17	11	18	21	26	42	596
West Virginia.....	60	57	57	70	36	19	11	13	18	22	34	49	37
Wisconsin.....	92	98	86	71	65	25	22	9	28	33	30	37	43
Wyoming.....	12	2	5	6	4	1	1	3	1	4	-----	4	43

¹ Includes 2 deaths for which month is not given.

Influenza—Cases reported, deaths registered, indicated morbidity and mortality rates, and number of cases reported for each death registered, 1927

State	Estimated population, July 1, 1927	Cases, reported, 1927	Cases per 1,000 inhabitants	Deaths registered, 1927	Deaths per 1,000 inhabitants	Cases reported for each death registered
Alabama	2,549,000	3,146	1.23	776	0.30	4.1
Arizona	459,000	—	—	108	.24	—
Arkansas	1,923,000	2,836	1.47	504	.26	5.6
California	4,433,000	1,645	.37	698	.16	2.4
Colorado	1,074,000	—	—	407	.38	—
Connecticut	1,636,000	366	.22	299	.18	1.2
Delaware	243,000	—	—	43	.18	—
District of Columbia	540,000	153	.28	94	.17	1.6
Florida	1,363,000	481	.35	323	.24	1.5
Georgia	3,171,000	5,602	1.77	—	—	—
Idaho	534,000	—	—	65	.12	—
Illinois	7,296,000	1,829	.25	1,064	.15	1.7
Indiana	3,150,000	1,426	.45	840	.27	1.7
Iowa	2,425,000	—	—	556	.23	—
Kansas	1,828,000	—	—	556	.30	—
Kentucky	2,538,000	—	—	693	.27	—
Louisiana	1,934,000	1,000	.52	595	.31	1.7
Maine	793,000	790	1.00	324	.41	2.4
Maryland	1,597,000	3,077	1.93	327	.20	9.4
Massachusetts	4,242,000	515	.12	323	.08	1.6
Michigan	4,490,000	—	—	782	.17	—
Minnesota	2,696,000	581	.22	480	.18	1.2
Mississippi	1,791,000	31,506	17.59	638	.36	49.4
Missouri	3,510,000	—	—	865	.25	—
Montana	714,000	—	—	148	.21	—
Nebraska	1,396,000	—	—	339	.24	—
Nevada	177,000	33	.43	3	.04	11.0
New Hampshire	455,000	789	1.73	171	.38	4.6
New Jersey	3,749,000	744	.20	426	.11	1.7
New Mexico	392,000	45	.11	—	—	—
New York	11,423,000	—	—	1,386	.12	—
North Carolina	2,897,000	—	—	1,102	.38	—
North Dakota	641,000	—	—	57	.09	—
Ohio	6,710,000	—	—	1,490	.22	—
Oklahoma	2,384,000	4,649	1.95	383	.16	12.1
Oregon	890,000	3,723	4.18	251	.28	14.8
Pennsylvania	9,730,000	—	—	2,354	.24	—
Rhode Island	704,000	122	.17	83	.12	1.5
South Carolina	1,845,000	33,857	18.35	291	.16	116.3
South Dakota	696,000	—	—	165	.24	—
Tennessee	2,485,000	3,864	1.55	798	.32	4.8
Texas	5,397,000	2,946	.55	608	.11	4.8
Vermont	1322,000	—	—	131	.37	—
Virginia	2,546,000	33,375	13.11	1,098	.43	30.4
Washington	1,562,000	—	—	512	.33	—
West Virginia	1,696,000	1,303	.77	446	.26	2.9
Wisconsin	2,918,000	2,205	.76	596	.20	3.7
Wyoming	241,000	—	—	43	.18	—

¹ Population estimated, Jan. 1, 1920.

² Population, State census, 1925.

Lethargic encephalitis—Cases reported, 1927

State	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
Alabama	6		4	2	1	4	3	1	4	1	1	4	31
California	6	6	8	13	5	6	4	8	7	7	9	7	86
Connecticut	3	6		4	1	4		3	3	2	2	1	29
Delaware				1	1								2
District of Columbia		5		1		1		1	1		1		10
Florida	1		2	1				3	1	1	1		10
Georgia	1			3								1	5
Illinois	9	11	8	16	14	7	9	9	7	3	9	10	112
Iowa	1	2	2	2			3	1	2	1			14
Kansas	2	1	1			2	1	1		4	3	1	16
Louisiana	1	1	2	4	4	3	6	4	4	3	1	4	37
Maine		1	1					1	1	1			5
Massachusetts	6	5	14	6	8	3	6	11	8	5	6	2	80
Montana					1	1		1	2		1	1	7
New York	26	29	28	22	35	17	24	18	21	29	24	21	294

Lethargic encephalitis—Deaths registered, 1927

State	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
Alabama	2			1	2	2	3	1	1	1	2	2	17
Arizona						1	1						2
Arkansas	2	5		5	3	7	1	2	1	6	2	4	38
California	9	3	8	6	5	4		5	7	5	5	2	59
Colorado	1	3	2	2	1	1	1	1	1			2	15
Connecticut	1	2	1	2	1	1		2	1	3	3	1	18
Delaware				1	1								2
District of Columbia		4				1	1		1		1		8
Florida	1		1	2	3				1			1	9
Idaho	1	1	2	2	3	2	3		2		4		20
Illinois	5	5	8	6	6	6	5	7	6	3	3	5	65
Iowa	1	2	2	2			3	2	1			1	14
Kansas		1	2	1	1	3	1		3				12
Kentucky	1	4	1	1	1	5	3	7	14	14	9	3	63
Louisiana		1	2			2	3	1	1				10
Maine		1	1					1	1	1			5
Maryland	1	3	3		3	3	3	4	3	3	2	1	29
Massachusetts	4	7	5	1	7	8	11	7	4	1	3	5	63
Michigan	3	7	3	7	2	5	3	6	5	6	5	3	55
Minnesota	6	5	8	6	7	2	4	3	9	3	5	10	68
Missouri	4	2	7	3	3	4	4	7	3	3	4	2	46
Montana				1	1	1		3		1			7
Nebraska	1	1	1						1		2		6
New Hampshire			1			1		1				1	4
New Jersey	6	3	7	6	6	4	5	7	4	4	5	5	62
New York	24	13	19	20	17	15	25	14	23	14	11	15	210
North Carolina	4		5		4	3	2	1	2	1	3		25
North Dakota	2	1	1	4	1	5				2	2	3	21
Ohio	16	11	8	15	15	6	15	8	7	4	6	8	119
Oklahoma		5	7	14	5	13	14	12	10	11	1	9	101
Oregon	2	4		1		6	1		2	1	1	1	19
Pennsylvania	9	11	9	11	4	8	11	7	2	5	8	5	90
Rhode Island			2	1	7			2	1	2	2		19
South Carolina	2	4	7	6	4	7	4		4	7	5	5	55
South Dakota			1										1
Tennessee	1	2	2	1	1	2		2			4	1	16
Texas	3	1	3	2	1	1	3	2	1	2	1	3	23
Vermont			1					1				1	3
Washington	3	2	7	11	8	7	4	5		6	2	5	60
West Virginia	1	1	1	1				2	1		1		9
Wisconsin	3	2	5	1	3	3	3	3	1	2	6		32

Lethargic encephalitis—Cases reported, deaths registered, indicated morbidity and mortality rates, and number of cases reported for each death registered, 1927

State	Estimated population, July 1, 1927	Cases reported, 1927	Cases per 1,000 inhabitants	Deaths registered, 1927	Deaths per 1,000 inhabitants	Cases reported for each death registered
Alabama	2,549,000	31	0.01	17	0.01	1.8
Arizona	459,000	—	—	2	.00	—
Arkansas	1,923,000	—	—	38	.02	—
California	4,433,000	86	.02	59	.01	1.5
Colorado	1,074,000	—	—	15	.01	—
Connecticut	1,636,000	29	.02	18	.01	1.6
Delaware	243,000	2	.01	2	.01	1.0
District of Columbia	540,000	10	.02	8	.01	1.2
Florida	1,363,000	10	.01	9	.01	1.1
Georgia	3,171,000	5	.00	—	—	—
Idaho	534,000	—	—	20	.04	—
Illinois	7,296,000	112	.02	65	.01	1.7
Iowa	2,425,000	14	.01	14	.01	1.0
Kansas	1,828,000	16	.01	12	.01	1.3
Kentucky	2,538,000	—	—	63	.02	—
Louisiana	1,934,000	37	.02	10	.01	3.7
Maine	793,000	5	.01	5	.01	1.0
Maryland	1,597,000	—	—	29	.02	—
Massachusetts	4,242,000	80	.02	63	.01	1.3
Michigan	4,490,000	—	—	55	.01	—
Minnesota	2,686,000	—	—	68	.03	—
Mississippi	¹ 1,791,000	—	—	7	.00	—
Missouri	3,510,000	—	—	46	.01	—
Montana	714,000	7	.01	7	.01	1.0
Nebraska	1,396,000	—	—	6	.00	—
New Hampshire	455,000	—	—	4	.01	—
New Jersey	3,749,000	—	—	62	.02	—
New York	11,423,000	294	.03	210	.02	1.4
North Carolina	2,897,000	—	—	25	.01	—
North Dakota	² 641,000	—	—	21	.03	—
Ohio	6,710,000	—	—	119	.02	—
Oklahoma	2,384,000	—	—	101	.04	—
Oregon	890,000	—	—	19	.02	—
Pennsylvania	9,730,000	—	—	90	.01	—
Rhode Island	704,000	—	—	19	.03	—
South Carolina	1,845,000	—	—	55	.03	—
South Dakota	696,000	—	—	1	.00	—
Tennessee	2,485,000	—	—	16	.01	—
Texas	5,397,000	—	—	23	.00	—
Vermont	¹ 352,000	—	—	3	.01	—
Washington	1,562,000	—	—	60	.04	—
West Virginia	1,696,000	—	—	9	.01	—
Wisconsin	2,918,000	—	—	32	.01	—

¹ Population estimated, Jan. 1, 1920.

² Population, State census, 1925.

Malaria—Cases reported, deaths registered, indicated morbidity and mortality rates, and number of cases reported for each death registered, 1927

State	Estimated population, July 1, 1927	Cases, reported, 1927	Cases per 1,000 inhabitants	Deaths registered, 1927	Deaths per 1,000 inhabitants	Cases reported for each death registered
Alabama.....	2,549,000	3,698	1.45	204	0.08	18.1
Arizona.....	459,000			1	.00	.....
Arkansas.....	1,923,000	6,795	3.53	793	.41	8.6
California.....	4,433,000	58	.01	15	.00	3.9
Colorado.....	1,074,000	1	.00	0	.....	.....
Connecticut.....	1,636,000	18	.01	1	.00	18.0
Delaware.....	243,000	5	.02	0	.....	.....
Florida.....	1,363,000	360	.26	208	.15	1.7
Georgia.....	3,171,000	2,233	.70		.....	.....
Idaho.....	534,000			2	.00	.....
Illinois.....	7,296,000	134	.02	63	.01	2.1
Indiana.....	3,150,000			8	.00	.....
Iowa.....	2,425,000			1	.00	.....
Kansas.....	1,828,000	13	.01	3	.00	4.3
Kentucky.....	2,538,000			55	.02	.....
Louisiana.....	1,934,000	2,194	1.13	266	.14	8.2
Maryland.....	1,597,000	26	.02	2	.00	13.0
Massachusetts.....	4,242,000	9	.00	1	.00	9.0
Michigan.....	4,490,000	27	.01	2	.00	13.5
Minnesota.....	2,686,000	5	.00	4	.00	1.2
Mississippi.....	1,791,000	88,302	49.30	427	.24	206.8
Missouri.....	3,510,000	353	.10	132	.04	2.7
Montana.....	714,000	¹ 1	.00	0	.....	.....
Nebraska.....	1,396,000			1	.00	.....
New Jersey.....	3,749,000	12	.00	2	.00	6.0
New Mexico.....	392,000	352	.90		.....	.....
New York.....	11,423,000	179	.02	4	.00	44.7
North Carolina.....	2,897,000			63	.02	.....
North Dakota.....	¹ 641,000	1	.00	0	.....	.....
Ohio.....	6,710,000	21	.00	3	.00	7.0
Oklahoma.....	2,384,000	4,257	1.79	208	.09	20.5
Oregon.....	890,000	16	.02	0	.....	.....
Pennsylvania.....	9,730,000	7	.00	5	.00	1.4
Rhode Island.....	704,000	4	.01	0	.....	.....
South Carolina.....	1,845,000	17,245	9.35	153	.08	112.7
South Dakota.....	696,000	3	.00	1	.00	3.0
Tennessee.....	2,485,000	2,938	1.18	146	.06	20.1
Texas.....	5,397,000	9,971	1.85	170	.03	58.7
Vermont.....	¹ 352,000			1	.00	.....
Virginia.....	2,546,000	1,413	.55	22	.01	64.2
West Virginia.....	1,696,000			1	.00	.....

¹ Population estimated, Jan. 1, 1920.

² Population, State census, 1925.

³ Nonresident.

Measles—Monthly estimated expectancy based on data which are available for the years 1920-1926, inclusive

State	Number of years included	January	February	March	April	May	June	July	August	September	October	November	December	Total
Alabama	7	75	186	182	143	144	75	52	20	9	19	6	27	938
Arizona	7	4	19	10	140	163	46	13	5	1	12	5	419	
Arkansas	7	120	110	146	412	268	145	61	18	18	7	15	22	1,342
California	7	737	1,779	2,263	1,389	1,830	1,287	404	146	74	109	120	185	10,323
Colorado	7	40	47	200	489	581	257	49	13	18	12	13	30	1,749
Connecticut	7	809	829	830	909	1,035	987	261	102	31	125	390	542	6,850
Delaware	7	11	27	34	38	42	46	13	5	1	4	2	7	230
Dist. of Columbia	7	44	68	124	194	151	130	68	9	5	8	13	25	839
Florida	7	20	41	117	118	91	35	10	6	3	2	7	18	468
Georgia	7	149	433	481	338	190	172	14	14	17	10	8	81	1,907
Idaho	7	17	37	73	74	63	21	18	8	2	7	8	27	355
Illinois	7	2,154	3,337	4,615	5,343	5,095	4,010	1,182	306	141	273	682	921	28,059
Indiana	7	800	761	1,543	757	1,709	757	190	63	29	65	140	225	7,039
Iowa	7	160	119	325	299	206	94	41	10	5	11	16	77	1,363
Kansas	7	270	548	824	2,126	1,472	721	89	42	41	61	52	98	6,344
Kentucky	3	323	405	331	355	229	182	64	35	15	10	24	30	2,003
Louisiana	7	20	60	58	94	70	53	9	6	4	5	6	13	398
Maine	7	68	248	433	544	383	267	96	23	21	10	52	63	2,198
Maryland	7	555	707	1,174	1,371	1,500	862	309	76	37	57	163	340	7,151
Massachusetts	7	2,335	2,952	3,010	3,846	3,756	2,985	1,037	271	201	660	1,096	1,320	23,469
Michigan	7	791	2,343	1,886	2,782	2,913	2,420	635	152	78	111	325	412	14,848
Minnesota	7	146	506	1,026	868	619	530	144	37	21	25	38	118	4,078
Mississippi	7	441	987	960	964	547	213	168	99	173	105	247	637	5,541
Missouri	5	244	947	1,847	1,567	1,242	385	121	45	11	22	26	50	6,507
Montana	6	43	90	204	169	99	18	12	4	6	5	20	22	692
Nebraska	7	41	149	285	290	290	157	25	9	10	7	16	50	1,329
Nevada	5	4	2	2	2	2	1	1	1	1	1	1	2	18
New Hampshire	7	127	203	163	123	260	172	89	11	7	18	55	31	1,259
New Jersey	7	1,426	1,999	2,740	3,891	4,458	2,453	653	129	62	131	358	539	18,839
New Mexico	7	124	65	215	158	141	101	9	4	6	5	9	49	886
New York	7	6,638	6,660	9,933	10,537	11,013	7,442	2,948	606	288	758	2,682	4,039	63,564
North Carolina	7	383	859	1,094	1,166	1,444	681	221	107	62	81	154	295	6,517
North Dakota	7	138	52	182	94	108	94	28	18	10	35	68	64	891
Ohio	7	1,048	1,250	2,208	3,292	5,030	2,917	765	151	100	163	365	472	18,451
Oklahoma	6	44	88	149	182	346	119	9	3	4	10	6	13	973
Oregon	7	61	54	108	265	174	80	26	11	12	16	21	24	852
Pennsylvania	7	4,468	5,877	5,524	7,289	8,156	5,601	1,630	540	459	1,037	2,436	2,818	45,838
Rhode Island	7	73	110	159	343	252	106	63	21	20	24	58	28	1,257
South Carolina	6	66	49	120	235	168	97	27	7	9	10	13	22	823
South Dakota	7	62	86	96	160	283	184	79	14	9	8	15	16	1,012
Tennessee	6	244	360	586	819	603	472	71	30	16	20	21	118	3,360
Texas	7	108	433	342	408	267	280	117	25	8	4	11	21	2,024
Vermont	7	128	56	105	291	287	369	238	40	23	43	56	71	1,707
Virginia	7	989	1,269	2,400	2,980	1,694	927	378	118	144	226	273	346	11,804
Washington	7	66	77	272	284	347	318	145	44	20	23	39	68	1,703
West Virginia	7	193	402	441	834	628	338	103	51	48	37	70	267	3,412
Wisconsin	7	1,156	1,798	2,047	2,211	1,718	1,477	568	264	142	305	392	760	12,838
Wyoming	7	7	11	53	53	47	56	8	3	10	18	58	6	330

Measles—Cases reported, 1927

State	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
Alabama.....	276	718	886	1,326	953	820	228	139	91	89	75	425	6,026
Arizona.....	68	76	271	370	223	162	318	10	5	8	57	18	1,586
Arkansas.....	45	80	542	719	308	264	124	45	33	49	89	92	2,390
California.....	6,709	11,562	18,209	11,266	6,653	2,966	580	240	135	199	261	183	58,963
Connecticut.....	145	408	600	326	215	252	131	42	27	47	105	193	2,491
Delaware.....	6	17	52	54	44	20	11	7	4	33	42	29	319
District of Colum- bia.....	8	16	22	27	34	15	14	1	4	8	4	11	164
Florida.....	78	272	591	897	409	200	64	28	10	3	6	24	2,582
Georgia.....	326	569	595	901	478	250	114	27	34	55	84	228	3,661
Idaho.....	1,122	1,324	662	463	248	198	72	18	7	7	12	8	4,141
Illinois.....	6,041	8,469	11,126	7,622	4,562	2,084	562	128	75	99	120	124	41,012
Indiana.....	692	933	940	1,283	687	388	149	24	26	51	44	178	5,395
Iowa.....	1,179	2,545	3,284	1,680	1,282	458	74	16	16	12	7	51	10,604
Kansas.....	1,182	2,816	4,807	4,773	3,819	1,269	293	74	93	152	206	91	19,575
Kentucky.....	54	73	420	156	43	58	146	13	6	23	69	148	1,209
Louisiana.....	362	509	611	442	263	294	170	20	35	17	86	169	2,978
Maine.....	937	743	719	689	423	348	164	15	29	218	190	222	4,697
Maryland.....	115	113	247	117	120	80	56	42	35	71	206	405	1,607
Massachusetts.....	719	855	1,297	1,406	1,761	1,734	1,023	253	151	526	1,221	2,552	13,498
Michigan.....	526	956	1,278	1,027	1,177	900	398	104	55	144	530	1,216	8,311
Minnesota.....	1,043	1,325	1,195	887	613	349	103	32	17	17	19	18	5,618
Mississippi.....	1,306	2,323	3,109	3,023	1,760	856	468	471	362	632	1,593	2,260	18,251
Missouri.....	1,160	1,033	991	1,448	954	487	171	38	23	29	65	105	6,504
Nebraska.....	425	676	1,161	1,855	1,017	317	107	66	4	6	36	37	5,707
New Hampshire.....	214	93	383	207	289	163	36	10	5	90	26	108	1,624
New Jersey.....	208	217	244	334	427	200	83	36	25	66	212	344	2,396
New Mexico.....	81	197	268	483	589	288	81	50	34	260	62	79	2,472
New York.....	3,813	3,350	3,464	3,587	3,874	3,697	1,389	380	164	422	739	1,779	26,658
North Carolina.....	689	1,427	2,211	4,754	7,219	4,974	1,481	705	467	749	2,479	5,727	32,882
North Dakota.....	516	468	918	705	249	117	31	18	9	27	20	24	3,102
Ohio.....	378	604	933	878	870	467	166	51	56	113	193	695	5,404
Oklahoma.....	378	796	969	2,000	1,287	875	236	114	54	108	124	318	7,259
Oregon.....	273	355	545	1,365	1,308	620	275	46	48	52	69	84	5,040
Pennsylvania.....	3,452	3,721	3,619	3,233	2,962	1,865	1,316	247	307	1,059	1,735	3,129	26,645
Rhode Island.....	7	5	14	20	16	30	6	5	-----	11	9	34	157
South Carolina.....	284	93	386	833	913	824	535	218	169	595	758	2,210	7,818
South Dakota.....	572	1,103	1,168	1,057	342	142	41	26	5	26	70	104	4,656
Tennessee.....	768	775	739	698	352	197	85	49	142	229	386	1,167	5,587
Texas.....	59	182	613	1,215	906	453	91	29	15	25	27	94	3,699
Vermont.....	596	420	536	609	881	381	196	67	47	23	19	88	3,923
Virginia.....	1,095	2,586	3,635	4,062	3,816	1,282	393	61	81	292	663	866	18,832
Washington.....	1,157	974	1,558	2,141	1,844	1,714	677	154	112	206	633	678	11,848
West Virginia.....	381	632	798	818	638	564	214	31	22	37	48	244	4,427
Wisconsin.....	3,713	3,069	3,128	3,540	2,954	2,473	1,170	293	373	252	322	397	21,714
Wyoming.....	681	938	261	331	467	161	40	11	13	45	33	20	3,001

¹ Includes 88 cases for which month is not given.

Measles—Deaths registered, 1927

State	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
Alabama.....	5	7	14	16	22	11	13	2	7	6	4	8	115
Arizona.....		1	5	5	6	1	3	1		2	2	1	27
Arkansas.....	1	11	7	13	8	10	7	2	5	2	2		68
California.....	25	42	66	76	51	32	11	1	3	3	1	1	312
Colorado.....	6	24	28	27	20	13	3	1	1		2	2	127
Connecticut.....	2	4	5	3		3	2	2					21
Florida.....	1	2	1	4	2	3	4		1	1			21
Idaho.....	1	2	9	8	2	6			1				29
Illinois.....	43	43	88	47	38	19	6	2	2	2	1	3	294
Indiana.....	4	11	12	18	6	5	3	1		1			61
Iowa.....	20	34	53	50	31	16	3		1		2		210
Kansas.....	9	12	19	18	11	7	4		2				83
Kentucky.....	11	18	19	5	9	7	9	6	4		5	18	111
Louisiana.....	13	27	62	31	18	14	42	23	6	4	6	6	252
Maine.....	8	8	9	17	12	10	2	2	2		1	1	72
Maryland.....		1	8	2	1	1		1	1	1		3	19
Massachusetts.....	4	9	4	10	8	12	6	2	2	4	8	17	86
Michigan.....	9	4	8	7	9	10	5	1		2	1	11	67
Minnesota.....	17	7	7	7	4	10	2				3	1	58
Missouri.....	25	47	36	43	14	12	5	3		3	1	2	191
Montana.....	12	6	4	1	1	1						1	26
Nebraska.....	8	13	13	9	12	12	1	1			1	1	71
New Hampshire.....	1	1	1	3	1	1					1	1	10
New Jersey.....	2	5	3	2	2	2	2		1		1	1	21
New York.....	33	18	17	25	29	23	14	6	4		4	4	181
North Carolina.....	3	10	15	29	41	49	20	7	2	6	10	18	210
North Dakota.....	6	1	1	2		4							10
Ohio.....	1	3	8	8	8	4		1	1		1	1	36
Oklahoma.....	7	10	17	39	28	26	19	5	5	1	5	7	169
Oregon.....			3	2	5	3	3						16
Pennsylvania.....	39	43	26	29	24	23	9	8	2	6	10	23	242
Rhode Island.....				1									1
South Carolina.....	1	2	1	4	10	8	3	4	1	2	5	14	55
South Dakota.....	3	2	12	12	13	7	1		53	1	1	1	106
Tennessee.....	9	9	23	21	16	4	2	2	6	8	9	20	129
Texas.....			17	7	8	6	7	3	3		2	8	61
Vermont.....	4	7	3	6	6	3	2	1		1		1	34
Virginia.....	5	16	19	24	15	15	8	4			2	3	111
Washington.....	3		5	7	10	7	10	2	1	2	4	5	56
West Virginia.....	15	15	14	13	10	4	6				3	5	85
Wisconsin.....	8	11	15	9	16	17	3	5	1	1	3	7	96
Wyoming.....	2	1	2	1	1		1						8

¹ Includes 4 deaths for which month is not given.

Measles—Cases reported, deaths registered, and indicated morbidity, mortality, and fatality rates, 1927; estimated expectancy and indicated annual rates based on years 1920–1926

State	Estimated population, July 1, 1927	Estimated expectancy			1927				
		Number of years	Cases	Cases per 1,000 inhabitants	Cases reported	Cases per 1,000 inhabitants	Deaths registered	Deaths per 1,000 inhabitants	Fatalities per 100 cases
Alabama.....	2,549,000	7	938	0.38	6,026	2.36	115	0.05	1.9
Arizona.....	459,000	7	419	1.07	1,586	3.46	27	.06	1.7
Arkansas.....	1,923,000	7	1,342	.73	2,390	1.24	68	.04	2.8
California.....	4,433,000	7	10,323	2.66	58,963	13.30	312	.07	.5
Colorado.....	1,074,000	7	1,749	1.75	13,649	12.89	127	.12	.9
Connecticut.....	1,636,000	7	6,850	4.58	2,491	1.52	21	.01	.8
Delaware.....	243,000	7	230	.99	319	1.31	0	.....	.....
District of Columbia.....	540,000	7	839	1.73	164	.30	0	.....	.....
Florida.....	1,363,000	7	468	.40	2,582	1.89	21	.02	.8
Georgia.....	3,171,000	7	1,907	.63	3,661	1.15	.....	.....	.....
Idaho.....	534,000	7	355	.74	4,141	7.75	29	.05	.7
Illinois.....	7,296,000	7	28,059	4.09	41,012	5.62	294	.04	.7
Indiana.....	3,150,000	7	7,039	2.32	5,395	1.71	61	.02	1.1
Iowa.....	2,425,000	7	1,363	.56	10,604	4.37	210	.09	2.0
Kansas.....	1,828,000	7	6,344	3.53	19,575	10.71	83	.05	.4
Kentucky.....	2,538,000	3	2,003	.81	1,209	.48	111	.04	9.2
Louisiana.....	1,934,000	7	398	.21	2,978	1.54	252	.13	8.5
Maine.....	793,000	7	2,198	2.82	4,697	5.92	72	.09	1.5
Maryland.....	1,697,000	7	7,151	4.71	1,607	1.01	19	.01	1.2
Massachusetts.....	4,242,000	7	23,469	5.80	13,498	3.18	86	.02	.6
Michigan.....	4,490,000	7	14,848	3.67	8,311	1.85	67	.01	.8
Minnesota.....	2,686,000	7	4,078	1.62	5,618	2.09	58	.02	1.0
Mississippi.....	1,791,000	7	5,541	3.09	18,251	10.19	163	.09	.9
Missouri.....	3,510,000	5	6,507	1.88	6,504	1.85	191	.05	2.9
Montana.....	714,000	6	692	1.11	.....	.....	26	.04	.....
Nebraska.....	1,396,000	7	1,329	.99	5,707	4.09	71	.05	1.2
Nevada.....	177,000	5	18	.23	1,067	13.86	1	.01	.1
New Hampshire.....	455,000	7	1,259	2.80	1,624	3.57	10	.02	.6
New Jersey.....	3,749,000	7	18,839	5.50	2,396	.64	21	.01	.9
New Mexico.....	392,000	7	886	2.36	2,472	6.31	.....	.....	.....
New York.....	11,423,000	7	63,564	5.84	26,658	2.33	181	.02	.7
North Carolina.....	2,897,000	7	6,517	2.40	32,882	11.35	210	.07	.6
North Dakota.....	1641,000	7	891	1.39	3,102	4.84	10	.02	.3
Ohio.....	6,716,000	7	18,451	2.98	5,404	.81	36	.01	.7
Oklahoma.....	2,384,000	6	973	.44	7,259	3.04	169	.07	2.3
Oregon.....	890,000	7	852	1.02	5,040	5.66	16	.02	.3
Pennsylvania.....	9,730,000	7	45,838	4.99	26,645	2.74	242	.02	.9
Rhode Island.....	704,000	7	1,257	1.92	157	.22	1	.00	.6
South Carolina.....	1,845,000	6	823	.47	7,818	4.24	55	.03	.7
South Dakota.....	696,000	7	1,012	1.52	4,656	6.69	106	.15	2.3
Tennessee.....	2,485,000	6	3,360	1.40	5,587	2.25	129	.05	2.3
Texas.....	5,397,000	7	2,024	.40	3,699	.69	61	.01	1.6
Vermont.....	1352,000	7	1,707	4.85	3,923	11.14	34	.10	.9
Virginia.....	2,546,000	7	11,804	4.88	18,832	7.40	111	.04	.6
Washington.....	1,562,000	7	1,703	1.17	11,848	7.59	56	.04	.5
West Virginia.....	1,696,000	7	3,412	2.17	4,427	2.61	85	.05	1.9
Wisconsin.....	2,918,000	7	12,838	4.65	21,714	7.44	96	.03	.4
Wyoming.....	241,000	7	330	1.53	3,001	12.45	8	.03	.3

¹ Population estimated, Jan. 1, 1920.

² Population, State census, 1925.

Meningococcus meningitis—Monthly estimated expectancy based on data which are available for the years 1920-1926, inclusive

State	Number of years included	January	February	March	April	May	June	July	August	September	October	November	December	Total
Alabama	4	4	5	7	5	5	3	4	3	3	3	3	5	30
Arizona	5	1				1						1		3
Arkansas	6	2	2	2	1	2	2	2	2	1	1	2	1	20
California	7	12	12	11	15	13	11	13	10	11	9	9	15	141
Colorado	4		1	1				1		1	1	1	1	7
Connecticut	7	5	8	7	5	9	5	6	3	4	4	5	4	65
Delaware	6			1		1			1	1				4
District of Col.	7	1	1	1	1			1					1	6
Florida	5	3	2	2	2	2	1	1	3		1	1	1	17
Georgia	3	5	1	3	2	4	3	2	1		2	2	2	27
Illinois	7	15	9	25	11	13	8	8	11	11	9	11	14	145
Iowa	4	2	1	2	1	1	1	1	2	5	2	2	1	21
Kansas	6	5	4	4	3	3	2	4	6	5	2	3	3	44
Kentucky	2	2	4	2	5	1		4	6	5	3	4	8	44
Louisiana	7	4	5	4	5	3	3	1	3	2	3	3	4	40
Maine	5	1	1	1	3	1		1	1	1	1	1	3	15
Maryland	7	2	4	3	3	3	2	2	4	2	3	3	2	33
Massachusetts	7	11	12	14	13	10	9	8	7	11	10	7	10	122
Minnesota	7	3	4	4	4	4	3	5	2	4	1	2	3	39
Mississippi	5	2	2	2	1	1	1	1		1	2	2	2	17
Missouri	5	5	3	5	3	2	5	2	4	2	4	1	1	37
Montana	7	2	2	1	2	2	1	1	1		2	1	1	16
Nebraska	7	2	2	2	1	1	1	1	1	2	1	2	2	18
Nevada	4		1		1				1					3
New Hampshire	5	1									1		1	3
New Jersey	7	10	11	11	10	10	9	8	7	8	6	8	7	105
New Mexico	6	1		1	1	1		1				1		6
New York	7	22	21	28	30	27	23	20	19	21	18	18	15	262
North Carolina	7	4	3	4	2	5	4	4	3	4	5	2	2	42
North Dakota	3		1	1				1		1		1		5
Ohio	7	8	5	7	8	6	7	6	6	5	6	6	4	74
Oregon	7	1	1	1	1	2	1	1		1	1	1	1	12
Pennsylvania	4	15	17	12	12	14	9	10	12	10	12	9	10	142
Rhode Island	6	2	1	1	1	1	1	1	1	1	1	1	1	13
South Carolina	2	2	1	4	1	1	1	1	1			1	1	14
South Dakota	7	1	1	1	1	1	1	1	1	1	1	1	2	13
Tennessee	6	4	4	3	3	3	2	2	3	2	3	2	3	34
Texas	4	2	2	2	1	4	3	1	1	1		3	1	21
Virginia	6	10	9	10	8	8	7	7	7	5	7	6	10	94
Washington	6	1	2	3	4	2	2	4	2	3	2	2	3	30
West Virginia	7	5	2	2	2	2	1	5	2	2	1	3	2	29
Wisconsin	6	9	10	7	9	4	5	5	6	4	9	6	5	79
Wyoming	6			1		1	1		1		1	1	1	7

Meningococcus meningitis—Cases reported, 1927

State	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
Alabama	6	3	6	4		2	1	7	3	2	3	2	39
Arizona		1				1			4			5	11
Arkansas	3		1			1			1	3	1		10
California	19	26	23	37	23	27	21	16	14	21	20	13	260
Connecticut	5	6	1	4	3	4	4	1	3	5		1	37
Delaware	1		1		1					1			4
District of Columbia		1		1			1					1	4
Florida	2	5	2	5	6	3	3	3	3	1	5		42
Georgia	4	3	3	6		2	1	1	1	1		1	23
Idaho	7	4	2	6	4	4	1	2		5	6		46
Illinois	15	11	17	31	32	41	20	22	25	23	27	32	296
Iowa	1	3	5	1	2	1	2	8	2	4	3	3	35
Kansas	7	4	2	9	4	4	3	6	2	2	3	3	49
Louisiana	8	2	6	2	1	2	1	1	2	4	6	3	38
Maine		2	1	2						3			8
Maryland	2	1	1	1	3	2	2	2	2	2	3	1	22
Massachusetts	5	3	5	10	9	8	4	5	4	4	10	8	75
Michigan	10	14	16	14	9	19	13	3	8	8	13	12	139
Minnesota	18	9	28	19	12	10	12	10	12	9	4	7	150
Missouri	7	5	8	14	12	4	4	6	1	7	8	14	90
Montana	19	34	29	24	11	9	9	3	4	6	4	13	165
Nebraska	1	1		2				1		2	1	1	9
New Jersey	13	7	10	3	11	9	3	4	6	4	8	4	82
New York	27	17	35	19	31	23	19	17	24	5	14	13	244
North Carolina		2	2	1	1	3	1	3	6	2	1	4	26
North Dakota	3	9	3	3	1		2	1	1	5		11	39
Ohio	10	14	18	9	5	9	5	9	4	7	3	8	101
Oklahoma	1	6	6	2	2		6	4	6	6	2	7	48
Oregon	9	5	8	7	6	8	6	15	7	6	3	9	89
Pennsylvania	6		17	7	9	7	9	6	10	16	9	17	113
Rhode Island		1	2	1	1		2		1	2	1		11
South Dakota		1		4						1	1	5	12
Tennessee	5	10	6	6	5	7	2	4	9	1	1	4	60
Texas	2	1	1	2		1	2	2	1	2	1	4	19
Virginia	6	5	5	2	2	2	8	4	3	3	5	3	48
Washington	24	26	20	28	22	11	5	9	10	11	15	17	198
Wisconsin	27	19	28	41	38	35	33	23	17	22	25	17	325
Wyoming	9			1	2			1	1		2	13	29

Meningococcus meningitis—Deaths registered, 1927

State	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
Alabama.....	1			1	1	1	2	2	1		2	1	12
Arizona.....												1	1
Arkansas.....					1					3	1		5
California.....	10	12	10	13	12	8	13	2	4	7	4	6	101
Colorado.....							1		1	7	3	5	17
Connecticut.....	1	2		1		1	2	2		1			10
Delaware.....					1					1			2
District of Columbia.....			1	1			1						3
Florida.....	1		1	1	1	1			1	1			7
Idaho.....	1	3	2			4	1	3				3	17
Illinois.....	10	8	6	15	13	13	13	8	12	12	9	10	129
Iowa.....	3			1	1								5
Kansas.....	1			1	2	1			1		2		8
Kentucky.....	37	15	25	19	22	22	24	20	21	20	19	20	273
Louisiana.....	3	3	3	1		2		2	1	1	3	3	22
Maine.....		1	1	2							2		6
Maryland.....	2		1	3	1	3	3	1	1	3		2	20
Massachusetts.....	4	1	5	2		3	5	3	2	2	4	6	37
Michigan.....	5	7	6	2	4	3	1	1	3	4	2	7	45
Minnesota.....	4	5	10	9	4	6	5	4	1	3	1	4	56
Missouri.....	3	2	2	5	6	2	1	4	1	2	2	1	31
Montana.....	7	13	16	6	4	7	4	2	3	2	2	4	70
Nebraska.....		1		3				1		2			7
New Hampshire.....				1	1		1						3
New Jersey.....	2	6	5	4	6	1	1	3		2	3	1	34
New York.....	11	12	19	14	21	9	10	6	8	6	11	14	141
North Carolina.....						1							1
North Dakota.....	3	8	4	4	1		3	2		1		7	33
Ohio.....	5	8	6	1	3	7	4	2	1	4	2	2	45
Oklahoma.....	2	4	3	2	6		1	4	10	2	2	4	40
Oregon.....	5	1	6	4	2	1		7	1		2	4	33
Pennsylvania.....	4	3	4	3	5	1	1	1	4	4	4	6	40
Rhode Island.....					1		1	1	1		1		5
South Carolina.....		1	3	4	6		2	3	2	2	2	2	27
South Dakota.....							1						1
Tennessee.....		3	1		1	2	1	1	1				10
Texas.....						1	3	2		1			7
Virginia.....	2	5	2	2	1		2	3		1	2	1	21
Washington.....	12	19	15	13	7	7	4	6	3	12	4	13	115
West Virginia.....				1									1
Wisconsin.....	7	6	11	15	13	11	12	9	6	12	9	5	116
Wyoming.....	3	1		1	5	1		1	2		6	6	26

Meningococcus meningitis—Cases reported, deaths registered, and indicated morbidity, mortality, and fatality rates, 1927; estimated expectancy and indicated annual rates based on years 1920–1926

State	Estimated population, July 1, 1927	Estimated expectancy			1927				
		Number of years	Cases	Cases per 1,000 inhabitants	Cases reported	Cases per 1,000 inhabitants	Deaths registered	Deaths per 1,000 inhabitants	Fatalities per 100 cases
Alabama.....	2,549,000	4	50	0.02	39	0.02	12	0.00	30.8
Arizona.....	459,000	5	3	.01	11	.02	1	.00	9.1
Arkansas.....	1,923,000	6	20	.01	10	.01	5	.00	50.0
California.....	4,433,000	7	141	.04	260	.06	101	.02	38.8
Colorado.....	1,074,000	4	7	.01	—	—	17	.02	—
Connecticut.....	1,636,000	7	65	.04	37	.02	10	.01	27.0
Delaware.....	243,000	6	4	.02	4	.02	2	.01	50.0
District of Columbia.....	540,000	7	6	.01	4	.01	3	.01	75.0
Florida.....	1,363,000	5	17	.01	42	.03	7	.01	16.7
Georgia.....	3,171,000	3	27	.01	23	.01	—	—	—
Idaho.....	534,000	—	—	—	46	.09	17	.03	37.0
Illinois.....	7,296,000	7	145	.02	296	.04	129	.02	43.6
Iowa.....	2,425,000	4	21	.01	35	.01	5	.00	14.3
Kansas.....	1,828,000	6	44	.02	49	.03	8	.00	16.3
Kentucky.....	2,538,000	2	44	.02	—	—	273	.11	—
Louisiana.....	1,934,000	7	40	.02	38	.02	22	.01	57.9
Maine.....	793,000	5	15	.02	8	.01	6	.01	75.0
Maryland.....	1,597,000	7	33	.02	22	.01	20	.01	90.9
Massachusetts.....	4,242,000	7	122	.03	75	.02	37	.01	49.3
Michigan.....	4,490,000	—	—	—	139	.03	45	.01	32.4
Minnesota.....	2,686,000	7	39	.02	150	.06	56	.02	37.3
Mississippi.....	1,791,000	5	17	.01	—	—	6	.00	—
Missouri.....	3,510,000	5	37	.01	90	.03	31	.01	34.4
Montana.....	714,000	7	16	.03	165	.23	70	.10	42.4
Nebraska.....	1,396,000	7	18	.01	9	.01	7	.01	77.8
Nevada.....	177,000	4	3	.04	5	.06	4	.05	80.0
New Hampshire.....	455,000	5	3	.01	—	—	3	.01	—
New Jersey.....	3,749,000	7	105	.03	82	.02	34	.01	41.5
New York.....	11,423,000	7	262	.02	244	.02	141	.01	57.8
North Carolina.....	2,897,000	7	42	.02	26	.01	1	.00	3.8
North Dakota.....	164,000	3	5	.01	39	.06	33	.05	84.6
Ohio.....	6,710,000	7	74	.01	101	.02	45	.01	44.6
Oklahoma.....	2,384,000	—	—	—	48	.02	40	.02	83.3
Oregon.....	890,000	7	12	.01	89	.10	33	.04	37.1
Pennsylvania.....	9,730,000	4	142	.02	113	.01	40	.00	35.4
Rhode Island.....	704,000	6	13	.02	11	.02	5	.01	45.5
South Carolina.....	1,845,000	2	14	.01	—	—	27	.01	—
South Dakota.....	696,000	7	13	.02	12	.02	1	.00	8.3
Tennessee.....	2,485,000	6	34	.01	60	.02	10	.00	16.7
Texas.....	5,397,000	4	21	.00	19	.00	7	.00	36.8
Virginia.....	2,546,000	6	94	.04	48	.02	21	.01	43.7
Washington.....	1,562,000	6	30	.02	198	.13	115	.07	58.1
West Virginia.....	1,696,000	7	29	.02	—	—	1	.00	—
Wisconsin.....	2,918,000	6	79	.03	325	.11	116	.04	35.7
Wyoming.....	241,000	6	7	.03	29	.12	26	.11	89.7

¹ Population estimated, Jan. 1, 1920.

² Population, State census, 1925.

Mumps—Monthly estimated expectancy based on data which are available for the years 1922-1926, inclusive

State	Number of years included	January	February	March	April	May	June	July	August	September	October	November	December	Total
Alabama.....	5	100	188	210	229	189	73	37	25	29	42	19	33	1,193
Arizona.....	5	12	15	27	14	15	6	2	1	4	10	26	7	139
Arkansas.....	5	24	77	105	107	99	42	44	32	21	12	8	16	587
California.....	5	398	403	439	343	328	230	116	64	128	267	316	415	3,447
Colorado.....	5	114	78	158	159	140	61	36	11	7	20	27	48	859
Connecticut.....	5	128	170	170	126	82	80	30	19	8	50	66	78	1,007
Delaware.....	5	3	2	4	1	1	1	1	1	2	9	5	22	13
Florida.....	5	14	36	78	103	91	45	13	7	2	9	5	22	425
Georgia.....	5	66	72	179	163	128	47	15	18	17	24	18	20	767
Idaho.....	5	1	3	1	1	1	1	1	1	1	1	1	1	7
Illinois.....	5	733	751	809	847	767	447	185	92	114	120	315	524	5,704
Indiana.....	3	11	3	14	10	5	1	3	3	5	3	11	23	48
Iowa.....	5	108	140	208	98	53	22	3	5	3	11	23	88	762
Kansas.....	5	255	277	245	373	304	127	39	26	23	26	51	59	1,805
Kentucky.....	3	46	43	74	40	28	9	11	3	3	2	8	3	270
Louisiana.....	5	2	4	6	5	3	2	1	2	2	2	1	2	30
Maine.....	5	113	87	222	207	135	45	23	15	4	27	32	163	1,013
Maryland.....	5	234	267	373	380	343	249	99	35	17	51	43	83	2,174
Massachusetts.....	5	422	492	518	504	627	600	242	90	100	188	449	604	4,836
Michigan.....	5	365	272	436	381	280	228	63	22	19	54	132	183	2,435
Mississippi.....	5	215	577	938	1,139	947	687	360	270	278	191	222	265	6,089
Missouri.....	5	111	252	242	115	122	72	28	22	17	16	52	45	1,094
Montana.....	5	40	52	104	71	23	10	3	6	3	3	10	3	328
Nebraska.....	5	32	43	88	39	79	23	12	7	5	11	9	21	369
Nevada.....	4	1	4	5	1	1	1	1	1	1	1	1	1	14
New Hampshire.....	5	14	20	15	6	8	3	1	1	3	4	27	14	116
New Mexico.....	5	35	48	40	49	48	8	5	3	6	8	5	12	267
New York.....	5	1,105	1,418	1,546	1,419	1,377	986	465	211	193	332	722	1,087	10,861
North Dakota.....	4	32	31	62	29	24	9	8	2	6	16	7	26	252
Ohio.....	5	185	303	406	363	252	143	50	37	51	70	207	301	2,368
Oklahoma.....	5	5	31	32	30	19	8	3	4	3	3	3	3	143
Oregon.....	5	50	28	34	37	25	18	17	5	21	17	18	21	301
Pennsylvania.....	5	1,174	1,184	1,305	1,110	824	404	179	91	100	175	373	553	7,472
Rhode Island.....	5	16	20	18	17	9	8	5	2	2	4	4	5	110
South Dakota.....	4	23	19	7	7	13	9	6	1	3	1	17	51	157
Tennessee.....	2	22	60	55	44	55	13	9	2	4	3	1	11	279
Texas.....	5	61	175	164	187	217	107	35	22	10	14	18	68	1,078
Vermont.....	5	132	77	86	78	56	62	27	22	15	37	67	41	700
Washington.....	5	304	322	329	201	192	102	71	25	41	77	125	217	2,006
Wisconsin.....	5	62	299	67	87	131	153	26	17	28	115	298	444	1,662
Wyoming.....	5	3	13	28	17	16	7	5	1	2	2	5	2	101

Mumps—Cases reported, 1927

State	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
Alabama	87	101	201	145	76	44	33	25	28	29	33	123	925
Arizona	3	9	13	17	17	32	13	1	4	6	4	22	141
Arkansas	76	210	160	109	128	112	74	168	150	160	22	93	1,462
California	857	998	1,616	1,057	1,033	715	152	137	200	249	348	321	7,683
Connecticut	143	120	198	167	211	167	59	24	38	66	193	146	1,532
Delaware		2	7	9	11	1	5	1	2	11	35	30	114
Florida	31	48	60	66	32	15	8	15	11	17	23	12	338
Georgia	74	105	128	254	124	84	37	18	19	22	26	41	932
Idaho	59	52	38	10	25	12	13	26	96	96	97	89	613
Illinois	1,016	1,623	2,763	2,263	2,085	1,453	526	212	154	279	523	686	13,583
Indiana	2	8	6	10	10	9	26	9	8	3	16	68	175
Iowa	57	62	171	147	146	84	19	9	40	143	98	98	985
Kansas	116	251	271	252	155	66	50	23	22	32	61	119	1,418
Kentucky	21	24	37	54	72	66	21	15	7	14	2	33	366
Louisiana	23	54	100	65	66	26	7	1	8	4	22		376
Maine	58	40	70	69	37	19	10	17	6	15	71	126	538
Maryland	83	116	118	134	134	79	34	17	17	22	53	57	864
Massachusetts	1,272	1,306	2,027	1,720	1,611	1,044	338	145	116	181	402	590	10,752
Michigan	325	461	1,170	966	1,140	927	187	99	98	237	548	658	6,816
Mississippi	521	639	741	579	600	330	253	165	146	195	448	555	15,280
Missouri	113	212	315	517	442	294	188	47	27	77	158	371	2,761
Montana	81	73	96	20	5	3	3	1		4	1	4	291
Nebraska	144	202	270	256	128	66	70	27	14	44	72	133	1,426
New Hampshire	22	83	39	19	25	11	3	5		2	12	7	228
New Mexico	63	180	173	139	71	22	11	3	12	10	9	10	703
New York	2,478	3,304	4,862	3,646	2,716	2,054	742	389	305	594	1,004	1,437	23,531
North Dakota	14	29	27	34	25	3	3	3		26	8	18	190
Ohio	387	430	740	846	749	670	330	147	161	232	511	820	6,023
Oklahoma	34	93	80	134	66	19	10	8	8	6	15	16	489
Oregon	109	107	103	111	80	61	23	18	22	49	30	62	775
Pennsylvania	1,008	1,449	2,623	2,281	1,926	1,321	733	203	261	545	1,292	1,903	15,545
Rhode Island	23	52	36	24	27	23	8	9	5	15	90	69	381
South Carolina		3	7	90	10	11							121
South Dakota	30	24	32	43	11	2	15	4	7	28	21	35	252
Tennessee	26	33	47	118	62	27	22	14	10	27	32	117	535
Texas	58	168	133	194	88	50	13	17	23	36	41	52	873
Vermont	144	242	315	446	243	139	56	2	70	40	52	74	1,823
Washington	265	369	607	517	356	150	71	50	75	135	274	200	3,069
Wisconsin	816	910	1,071	1,396	1,257	786	343	104	106	169	237	495	7,690
Wyoming	79	42	116	125	2	2		4	6	8	4	10	398

¹ Includes 108 cases for which month is not given.

Mumps—Deaths registered, 1927

State	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
Alabama						1							1
Arizona											1	1	2
California	1			2						1			4
Florida				1		1	1			1			4
Illinois	1	1		1						1			4
Iowa	1		1					1				1	4
Kansas			1					1				1	4
Louisiana		1		1	1	1					1		5
Maine						1					1		2
Massachusetts			1	1		2						2	6
Michigan			1	1		3	2						7
Minnesota	1				1	1							3
Missouri			1		1								2
Montana			1		1								2
Nebraska	1	1		1		2							5
New Hampshire					2								2
New Jersey	1			1	1		1			1		1	6
New York		3	3	1	1		1	1			1		11
North Carolina		1			1			1		1			4
North Dakota								1					1
Ohio	1	1			1							1	4
Oklahoma			1	1									2
Oregon			1										1
Pennsylvania	1	3	1						1				5
Rhode Island												1	2
Texas	1					1							3
Vermont			1										1
Washington			1								1		2
West Virginia						1							1

Mumps—Cases reported, deaths registered, and indicated morbidity and mortality rates, 1927; estimated expectancy and indicated annual rates based on years 1922-1926

State	Estimated population, July 1, 1927	Estimated expectancy			1927				
		Number of years	Cases	Cases per 1,000 inhabitants	Cases reported	Cases per 1,000 inhabitants	Deaths registered	Deaths per 1,000 inhabitants	Cases reported for each death registered
Alabama.....	2,549,000	5	1,193	0.48	925	0.36	1	0.00	925.0
Arizona.....	459,000	5	139	.34	141	.31	2	.00	70.5
Arkansas.....	1,923,000	5	587	.32	1,462	.76	0		
California.....	4,433,000	5	3,447	.85	7,683	1.73	4	.00	1,920.7
Colorado.....	1,074,000	5	859	.84	490	.46	0		
Connecticut.....	1,636,000	5	1,007	.65	1,532	.94	0		
Delaware.....	243,000	5	13	.06	114	.47	0		
Florida.....	1,363,000	5	425	.35	338	.25	4	.00	84.5
Georgia.....	3,171,000	5	767	.25	932	.29			
Idaho.....	534,000	5	7	.01	613	1.15			
Illinois.....	7,296,000	5	5,704	.82	13,583	1.86	4	.00	3,395.7
Indiana.....	3,150,000	3	48	.02	175	.06	0		
Iowa.....	2,425,000	5	762	.32	985	.41	4	.00	246.2
Kansas.....	1,828,000	5	1,805	1.00	1,418	.78	4	.00	354.5
Kentucky.....	2,538,000	3	270	.11	366	.14	0		
Louisiana.....	1,934,000	5	30	.02	376	.19	5	.00	75.2
Maine.....	793,000	5	1,013	1.29	538	.68	2	.00	269.0
Maryland.....	1,597,000	5	2,174	1.41	864	.54	0		
Massachusetts.....	4,242,000	5	4,836	1.18	10,752	2.53	6	.00	1,792.0
Michigan.....	4,490,000	5	2,435	.58	6,816	1.52	7	.00	973.7
Minnesota.....	2,686,000						3	.00	
Mississippi.....	1,791,000	5	6,089	3.40	5,280	2.95			
Missouri.....	3,510,000	5	1,094	.32	2,761	.79	2	.00	1,380.5
Montana.....	714,000	5	328	.50	291	.41	2	.00	145.5
Nebraska.....	1,396,000	5	369	.27	1,426	1.02	5	.00	285.2
Nevada.....	177,000	4	14	.18	108	1.40	0		
New Hampshire.....	455,000	5	116	.26	228	.50	2	.00	114.0
New Jersey.....	3,749,000						6	.00	
New Mexico.....	392,000	5	267	.70	703	1.79			
New York.....	11,423,000	5	10,861	.98	23,531	2.06	11	.00	2,139.2
North Carolina.....	2,897,000						4	.00	
North Dakota.....	2641,000	4	252	.39	190	.30	1	.00	190.0
Ohio.....	6,710,000	5	2,368	.37	6,023	.90	4	.00	1,505.7
Oklahoma.....	2,384,000	5	143	.06	489	.21	2	.00	244.5
Oregon.....	890,000	5	301	.35	775	.87	1	.00	775.0
Pennsylvania.....	9,730,000	5	7,472	.80	15,545	1.60	5	.00	3,109.0
Rhode Island.....	704,000	5	110	.16	381	.54	2	.00	190.5
South Carolina.....	1,845,000				121	.07	0		
South Dakota.....	696,000	4	157	.23	252	.36	0		
Tennessee.....	2,485,000	2	279	.11	535	.22	0		
Texas.....	5,397,000	5	1,078	.21	873	.16	3	.00	291.0
Vermont.....	1352,000	5	700	1.99	1,823	5.18	1	.00	1,823.0
Washington.....	1,562,000	5	2,006	1.35	3,069	1.96	2	.00	1,534.5
West Virginia.....	1,696,000						1	.00	
Wisconsin.....	2,918,000	5	1,662	.59	7,690	2.64	0		
Wyoming.....	241,000	5	101	.45	378	1.65	0		

¹ Population estimated, Jan. 1, 1920.

² Population, State census, 1925.

Pellagra—Cases reported, 1927

State	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
Alabama.....	16	19	22	63	83	107	127	65	56	57	23	32	670
Arkansas.....	26	27	42	26	94	187	355	253	193	444	185	82	1,914
California.....	2			5	5	3	1	4	3	11	5	6	45
District of Columbia.....	1	1				1	1	1				1	6
Georgia.....	12	5	16	42	59	68	92	42	27	47	22	11	443
Illinois.....	2	1				2	3	2	1	5	6		22
Kansas.....		2	1		1	2	1		2	1			10
Louisiana.....	10	11	15	33	49	81	145	89	76	42	51	26	628
Maine.....		2				1		1	1	1	1	2	8
Massachusetts.....	1	2	1	2		1	2	3	1	2			15
Minnesota.....						1	1		2		1		5
Mississippi.....	217	257	394	685	1,286	1,735	2,389	1,813	1,172	857	638	313	11,847
Montana.....								1					1
New Mexico.....				4	3	3	5	10	6	2			33
Oklahoma.....	9	7	21	50	46	65	120	65	46	43	16	7	495
Pennsylvania.....					4	2	4	3			1		14
South Carolina.....	116	125	168	401	656	837	789	501	288	396	187	162	4,626
Tennessee.....	13	14	12	48	93	156	241	122	71	77	24	16	887
Virginia.....	1	14	20	25	45	67	89	47	33	33	24	13	411

¹ Includes 91 cases for which month is not given.

Pellagra—Deaths registered, 1927

State	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
Alabama.....	30	29	16	34	53	72	69	48	66	45	39	51	552
Arizona.....		1	1					1	1				7
Arkansas.....	37	15	29	33	59	75	104	93	73	39	51	18	626
California.....	2	3	1	4			3	2	7	10	5	1	41
Colorado.....	1												1
District of Columbia.....		1				1	1	1			1		5
Florida.....	14	12	11	18	29	19	19	20	25	17	14	22	220
Illinois.....				1	1	3	1	1	2	3	3	1	16
Indiana.....							1	1	1				3
Iowa.....						1		1			1		2
Kansas.....						2		1	2	1		1	7
Kentucky.....	7	7	2	7	11	27	18	16	22	19	7	7	150
Louisiana.....	8	17	17	22	30	51	50	47	32	21	20	17	332
Maine.....		1				1		1	1	1	1	1	6
Maryland.....		1		1		1	3	2	5	4	1		18
Massachusetts.....	2			3			1			1		1	8
Michigan.....				2	1	1	1				1		6
Minnesota.....						1			1		1		3
Missouri.....	1		2	1	3	3	4	2	4	2	4	1	27
Montana.....								1					1
Nebraska.....							1						1
New Hampshire.....										1			1
New Jersey.....										1	2		3
New York.....	1		1	1	2	3	1	3	1	4		1	18
North Carolina.....	32	29	36	36	51	65	81	69	62	70	68	60	659
Ohio.....	1		1	3		1	2		2	1	2	3	16
Oklahoma.....	9	4	1	11	25	28	19	18	20	20	14	10	179
Pennsylvania.....					1	2	1	2	2	3			11
Rhode Island.....				1				1					2
South Carolina.....	17	22	31	45	70	85	110	86	66	57	53	45	687
Tennessee.....	30	28	40	42	52	67	76	65	56	44	46	40	586
Texas.....	29	40	56	63	93	91	86	67	78	60	52	84	799
Vermont.....			1										1
Virginia.....	5	7	10	8	16	14	21	16	16	16	14	12	155
West Virginia.....								1	2	2			5

Pellagra—Cases reported, deaths registered, indicated morbidity and mortality rates and number of cases reported for each death registered, 1927

State	Estimated population, July 1, 1927	Cases reported, 1927	Cases per 1,000 inhabitants	Deaths registered, 1927	Deaths per 1,000 inhabitants	Cases reported for each death registered
Alabama.....	2,549,000	670	0.26	552	0.22	1.2
Arizona.....	459,000	—	—	7	.02	—
Arkansas.....	1,923,000	1,914	1.00	626	.33	3.1
California.....	4,433,000	45	.01	41	.01	1.1
Colorado.....	1,074,000	—	—	1	.00	—
District of Columbia.....	540,000	6	.01	5	.01	1.2
Florida.....	1,363,000	—	—	220	.16	—
Georgia.....	3,171,000	443	.14	—	—	—
Illinois.....	7,296,000	22	.00	16	.00	1.4
Indiana.....	3,150,000	—	—	3	.00	—
Iowa.....	2,425,000	—	—	2	.00	—
Kansas.....	1,828,000	10	.01	7	.00	1.4
Kentucky.....	2,538,000	—	—	150	.06	—
Louisiana.....	1,934,000	628	.32	332	.17	1.9
Maine.....	793,000	8	.01	6	.01	1.3
Maryland.....	1,597,000	—	—	18	.01	—
Massachusetts.....	4,242,000	15	.00	8	.00	1.9
Michigan.....	4,490,000	—	—	6	.00	—
Minnesota.....	2,686,000	5	.00	3	.00	1.7
Mississippi.....	1,791,000	11,847	6.61	689	.38	17.2
Missouri.....	3,510,000	—	—	27	.01	—
Montana.....	714,000	1	.00	1	.00	1.0
Nebraska.....	1,396,000	—	—	1	.00	—
New Hampshire.....	455,000	—	—	1	.00	—
New Jersey.....	3,749,000	—	—	3	.00	—
New Mexico.....	392,000	33	.08	—	—	—
New York.....	11,423,000	—	—	18	.00	—
North Carolina.....	2,897,000	—	—	659	.23	—
Ohio.....	6,710,000	—	—	16	.00	—
Oklahoma.....	2,384,000	495	.21	179	.08	2.8
Pennsylvania.....	9,730,000	14	.00	11	.00	1.3
Rhode Island.....	704,000	—	—	2	.00	—
South Carolina.....	1,845,000	4,626	2.51	687	.37	6.7
Tennessee.....	2,485,000	887	.36	586	.24	1.5
Texas.....	5,397,000	—	—	799	.15	—
Vermont.....	1352,000	—	—	1	.00	—
Virginia.....	2,546,000	411	.16	155	.06	2.7
West Virginia.....	1,696,000	—	—	5	.00	—

¹ Population estimated, Jan. 1, 1920.

Plague (human)

One case with one death from plague was reported July 8, 1927, in Contra Costa County, Calif.

Two cases of plague were reported in Honokaa, Hawaii, during May, 1927, both of which proved fatal, the deaths occurring on May 17 and 23, respectively.

One case with one death was reported in Kukuihaele, Hawaii, on August 12, making a total of three cases and three deaths reported in Hawaii during 1927.

Pneumonia (all forms)—Cases reported, 1927

State	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
Alabama.....	330	300	325	376	179	141	113	65	70	138	288	520	2,845
California ¹	357	384	467	286	230	262	191	178	129	217	171	337	1,309
Connecticut.....	372	317	428	351	317	203	89	65	95	136	211	303	2,887
District of Columbia.....	199	184	169	106	49	62	37	29	34	72	80	104	1,125
Georgia.....	196	176	213	248	92	50	57	36	46	72	179	254	1,619
Illinois.....	1,787	1,515	1,802	1,609	1,240	959	418	382	437	662	907	1,484	13,202
Kansas.....	333	266	294	166	124	43	31	31	24	77	90	173	1,652
Louisiana.....	226	185	209	221	180	152	132	96	131	125	188	275	2,120
Maine.....	222	205	175	198	147	78	36	30	47	84	94	205	1,521
Maryland.....	576	557	731	424	265	146	72	67	100	165	256	341	3,700
Massachusetts ¹	592	484	563	511	364	317	154	133	155	211	324	471	14,279
Michigan.....	662	680	673	666	529	364	173	122	210	239	360	459	5,137
Minnesota.....	270	190	200	215	136	137	70	55	66	127	163	218	1,847
Mississippi.....	1,687	1,661	1,499	908	617	356	263	350	295	539	936	1,657	10,874
New Jersey.....	720	606	870	686	462	261	142	121	148	228	361	472	5,077
New Mexico.....	68	44	41	24	26	15	3	-----	9	9	15	37	291
New York.....	4,723	3,890	4,436	3,814	2,743	2,041	911	814	784	1,126	1,818	2,400	29,500
Oklahoma.....	593	381	312	318	121	30	23	37	31	109	146	111	2,422
Oregon.....	146	103	101	102	71	29	38	14	23	50	38	98	813
Washington.....	113	121	91	99	79	8	56	35	41	58	100	192	993

¹ Lobar only.² Includes 106 cases for which month is not given.*Pneumonia (all forms)—Deaths registered, 1927*

State	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
Alabama.....	224	161	194	159	117	62	59	73	94	115	190	295	1,743
Arizona.....	79	81	71	52	52	46	27	8	15	35	29	53	548
Arkansas.....	185	144	168	108	73	31	28	49	11	56	98	154	1,105
California.....	556	410	354	333	301	256	211	198	196	274	246	449	3,784
Colorado.....	211	128	128	115	88	58	40	48	62	91	83	139	1,191
Connecticut.....	179	145	173	169	118	64	56	61	58	85	100	137	1,345
Delaware.....	51	22	35	34	20	8	3	3	9	10	22	14	231
District of Columbia.....	107	90	76	48	23	21	22	23	22	46	46	54	578
Florida.....	120	99	109	79	59	50	48	29	40	68	88	118	907
Idaho.....	43	75	23	37	16	44	17	20	16	6	14	22	333
Illinois.....	781	617	687	572	438	338	222	181	202	325	432	677	5,472
Indiana.....	377	281	306	269	195	141	80	80	116	186	227	313	2,571
Iowa.....	242	148	188	146	121	97	59	56	61	128	117	160	1,523
Kansas.....	150	95	112	99	65	34	40	22	34	66	77	137	931
Kentucky.....	329	225	231	199	107	109	79	81	83	134	206	233	2,016
Louisiana.....	210	159	192	121	119	95	97	75	96	117	151	222	1,654
Maine.....	133	134	119	142	115	59	26	29	38	67	79	137	1,078
Maryland.....	329	293	367	231	162	66	55	69	117	153	220	215	2,115
Massachusetts.....	313	218	231	226	195	125	72	56	80	95	161	179	1,951
Michigan.....	465	590	448	416	341	231	137	118	156	221	282	302	3,647
Minnesota.....	252	179	177	193	115	129	63	53	61	120	153	200	1,695
Missouri.....	499	319	391	281	246	157	116	108	137	190	268	356	3,068
Montana.....	72	49	43	35	22	27	17	7	16	30	22	50	390
Nebraska.....	133	84	90	67	58	39	26	31	36	60	55	90	769
New Hampshire.....	50	37	35	38	16	16	8	5	7	11	16	21	260
New Jersey.....	515	391	456	436	261	186	124	101	138	167	251	313	3,339
New York.....	1,652	1,351	1,658	1,544	1,169	780	483	456	473	670	890	1,150	112,291
North Carolina.....	291	270	281	224	231	160	81	78	95	121	164	279	2,275
North Dakota.....	82	65	50	49	33	19	14	10	14	37	29	30	432
Ohio.....	741	624	681	621	453	297	217	206	223	289	427	501	5,280
Oklahoma.....	299	195	266	204	155	104	78	72	82	87	152	281	1,975
Oregon.....	101	98	51	51	32	24	24	24	29	46	53	59	592
Pennsylvania.....	1,428	1,055	1,298	1,087	801	587	365	345	407	693	724	838	9,628
Rhode Island.....	89	78	87	75	47	34	23	17	23	49	36	50	608
South Carolina.....	179	140	208	166	161	73	54	71	72	82	115	197	1,518
South Dakota.....	64	75	55	46	36	24	16	13	67	23	23	48	490
Tennessee.....	274	238	274	203	159	100	70	73	101	121	199	344	2,156
Texas.....	554	278	386	282	287	168	164	113	128	151	197	459	3,167
Vermont.....	45	40	39	39	27	25	12	9	12	12	22	30	312
Virginia.....	299	205	236	192	150	63	75	58	67	104	141	185	1,775
Washington.....	109	102	82	105	84	65	43	44	61	66	91	111	963
West Virginia.....	162	123	139	131	89	53	47	33	57	82	111	146	1,173
Wisconsin.....	240	180	226	221	148	132	81	50	87	137	160	229	1,891
Wyoming.....	31	14	20	9	12	8	8	8	3	15	10	20	158

¹ Includes 15 deaths for which month is not given.

Pneumonia (all forms)—Cases reported, deaths registered, indicated morbidity and mortality rates, and number of cases reported for each death registered, 1927

State	Estimated population, July 1, 1927	Cases, reported, 1927	Cases per 1,000 inhabitants	Deaths registered, 1927	Deaths per 1,000 inhabitants	Cases reported for each death registered
Alabama.....	2,549,000	2,845	1.12	1,743	0.68	1.6
Arizona.....	459,000	.....	.....	548	1.19	.....
Arkansas.....	1,923,000	.....	.....	1,105	.57	.....
California.....	4,433,000	² 3,209	² .72	3,784	.85	.....
Colorado.....	1,074,000	.....	.....	1,191	1.11	.....
Connecticut.....	1,636,000	2,887	1.76	1,345	.82	2.1
Delaware.....	243,000	.....	.....	231	.95	.....
District of Columbia.....	540,000	1,125	2.08	578	1.07	1.9
Florida.....	1,363,000	.....	.....	907	.67	.....
Georgia.....	3,171,000	1,619	.51	.....	.....	.....
Idaho.....	534,000	.....	.....	333	.62	.....
Illinois.....	7,296,000	13,202	1.81	5,472	.75	2.4
Indiana.....	3,150,000	.....	.....	2,571	.82	.....
Iowa.....	2,425,000	.....	.....	1,523	.63	.....
Kansas.....	1,828,000	1,652	.90	931	.51	1.8
Kentucky.....	2,538,000	.....	.....	2,016	.79	.....
Louisiana.....	1,934,000	2,120	1.10	1,654	.86	1.3
Maine.....	793,000	1,521	1.92	1,078	1.36	1.4
Maryland.....	1,597,000	3,700	2.32	2,115	1.32	1.7
Massachusetts.....	4,242,000	² 4,279	² 1.01	1,951	.46	.....
Michigan.....	4,490,000	5,137	1.14	3,647	.81	1.4
Minnesota.....	2,686,000	1,847	.69	1,695	.63	1.1
Mississippi.....	¹ 1,791,000	10,874	6.07	1,123	.63	9.7
Missouri.....	3,510,000	.....	.....	3,068	.87	.....
Montana.....	714,000	.....	.....	390	.55	.....
Nebraska.....	1,396,000	.....	.....	769	.55	.....
Nevada.....	¹ 77,000	129	1.68	76	.99	1.7
New Hampshire.....	455,000	.....	.....	260	.57	.....
New Jersey.....	3,749,000	5,077	1.35	3,339	.89	1.5
New Mexico.....	392,000	291	.74	.....	.....	.....
New York.....	11,423,000	29,500	2.58	12,291	.20	2.4
North Carolina.....	2,897,000	.....	.....	2,275	.79	.....
North Dakota.....	² 641,000	.....	.....	432	.67	.....
Ohio.....	6,710,000	.....	.....	5,280	.79	.....
Oklahoma.....	2,384,000	2,422	1.02	1,975	.83	1.2
Oregon.....	890,000	813	.91	592	.67	1.4
Pennsylvania.....	9,730,000	.....	.....	9,628	.99	.....
Rhode Island.....	704,000	.....	.....	608	.86	.....
South Carolina.....	1,843,000	.....	.....	1,518	.82	.....
South Dakota.....	696,000	.....	.....	490	.70	.....
Tennessee.....	2,485,000	.....	.....	2,156	.87	.....
Texas.....	5,397,000	.....	.....	3,167	.59	.....
Vermont.....	² 352,000	.....	.....	312	.89	.....
Virginia.....	2,546,000	.....	.....	1,775	.70	.....
Washington.....	1,562,000	993	.64	963	.62	1.0
West Virginia.....	1,696,000	.....	.....	1,173	.69	.....
Wisconsin.....	2,918,000	.....	.....	1,891	.65	.....
Wyoming.....	241,000	.....	.....	158	.66	.....

¹ Population estimated, Jan. 1, 1920. ² Population, State census, 1925. ³ Lobar pneumonia only.

Poliomyelitis (infantile paralysis)—Monthly estimated expectancy based on data which are available for the years 1920—1926, inclusive

State	Number of years included	January	February	March	April	May	June	July	August	September	October	November	December	Total
Alabama	5	2	1	2	1	4	3	10	4	3	2	2	1	35
Arizona	7						1	1	1	1	1	1		6
Arkansas	4		2				1		4	4	3	1		15
California	7	8	3	5	4	7	8	10	18	35	51	39	16	204
Colorado	5			1			1		2	3	1	2	1	11
Connecticut	7	1	1	2	1	1	1	8	14	12	10	5	2	58
Delaware	5							1	1	1				3
District of Columbia	7			1		1		1	1	3	5	1	1	14
Florida	7		1	1	1	1	1	2	1	1	1	1	2	13
Georgia	5	1	1		1	1	2	1	1	1	1	1		12
Idaho	5					1		1		3	5			10
Illinois	7	5	7	7	3	5	6	11	37	66	61	17	10	235
Indiana	6	2	1	1	1	1	2	2	8	8	11	4	2	43
Iowa	6	1	2	1	1	2	1	1	3	23	10	6	4	55
Kansas	6	2	2	2		1	1	5	12	22	16	5	3	71
Louisiana	7	1	1	2	1	1	2	2	3	4	3	1	1	22
Maine	7			1		1	1	1	2	3	3	3	1	16
Maryland	7	2	2	1	2	2	2	6	6	11	11	7	2	54
Massachusetts	7	9	4	5	3	4	4	16	54	59	31	23	12	224
Michigan	7	2	2	3	2	2	3	6	11	20	13	9	5	78
Minnesota	7	1		2	1	2	3	10	21	20	15	10	4	89
Mississippi	7	3	2	2	3	4	3	4	4	3	4	3	1	36
Missouri	5	1	1			1	1	2	3	9	9	4	1	31
Montana	7		1	1	1	1	1	2	5	8	5	2		27
Nebraska	7			1	1	1	1	1	6	8	5	6	1	31
Nevada	6					1	1				1		1	4
New Hampshire	7		1		1		1	1	2	4	2	1		13
New Jersey	7	3	2	3	3	3	3	13	30	21	14	10	5	110
New Mexico	7	1			1		1		1	1	1	1		7
New York	7	12	8	9	8	8	14	68	197	195	157	67	28	771
North Carolina	7	1	1	1	1	1	2	4	6	4	3	3	1	28
North Dakota	7	1	1	1			1	1	4	3	4	5	1	22
Ohio	7	4	2	2	2	3	4	9	27	32	25	7	6	123
Oklahoma	2	2	4	1	1		2	3	1	6	8	5	3	36
Oregon	7	1	1	1			1	1	1	4	1	2	1	14
Pennsylvania	7	4	3	3	3	3	3	11	27	49	29	12	6	153
Rhode Island	7	1		1			1	2	2	6	3	1	1	18
South Dakota	7	1	1	1	1	1	1	2	3	5	5	3	1	25
Tennessee	3		1	1	1		1	1	4	7	4	1	1	22
Texas	2	7	3	1	1	1	7	6	5	5	2	3	5	46
Vermont	7	1	1	1			1	1	3	3	5	10	1	28
Virginia	7	4	4	4	4	4	5	18	18	11	11	7	3	93
Washington	7	1	1	1			1	1	1	7	5	4	2	25
West Virginia	6		1	1		1	1	4	7	2	2	1	1	21
Wisconsin	7	2	2	2	1	3	2	5	12	21	20	15	3	88
Wyoming	7					1			1		1			3

Poliomyelitis (infantile paralysis)—Cases reported, 1927

State	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
Alabama.....	1	1	2	2		5	2	4	3	3	1	6	30
Arizona.....	1			3	6	12	14	5	12	17	1	1	72
Arkansas.....			1			1	9	5	4	9	18	11	61
California.....	11	9	7	8	21	75	216	316	251	150	141	72	1,277
Connecticut.....	2	1	1	2		1	4	52	62	42	16	5	188
Delaware.....							1	1			2		4
District of Columbia.....								3	3	7			14
Florida.....	5		1	3	1	3	4	5	7	4	5	1	39
Georgia.....	1	2			2	1	5	2	3	3		2	21
Idaho.....		1						1	1	7	24	5	39
Illinois.....	2	5	5	4	5	5	26	66	168	128	52	14	480
Indiana.....	1					1	1	11	32	69	27	11	153
Iowa.....	2	1			1		1	9	28	36	17	14	109
Kansas.....	2		5	2	3	5	17	34	68	45	11	4	196
Kentucky.....	1		2	1	1	1	6	23	42	53	34	31	195
Louisiana.....	2	1	2	2	7	10	21	9	7	6	3	3	73
Maine.....	1	1	1			3		11	38	48	24	8	135
Maryland.....		1	1		1	1	1	1	5	11	5	4	31
Massachusetts.....	6	2	3	4	7	11	22	174	373	376	146	65	1,189
Michigan.....	8	1	4			3	7	31	87	90	37	16	284
Minnesota.....	2	2	2	1	3	2	9	13	39	42	18	7	140
Mississippi.....	1		4	3	4	6	2	8	8	6	8	6	56
Missouri.....	2	3	1	4	2			4	36	86	92	36	273
Montana.....		1					3	1	3	5	6	3	22
Nebraska.....	1				1	1		6	20	49	27	10	115
New Hampshire.....	1	1		1			1	2	18	20	5	2	51
New Jersey.....	2	2	1	2	2	8	12	80	152	45	19	7	332
New Mexico.....	1	1			1	1	63	35	44	38	12	4	200
New York.....	14	5	4	12	8	10	35	238	309	169	79	33	916
North Carolina.....	2	3	1				1	3	5	3	3	3	24
North Dakota.....	3		5	4				2	5	3	3	2	27
Ohio.....	6	7	2	1		2	30	271	428	272	121	30	1,170
Oklahoma.....	3	2		1	1	5	16	36	33	43	12	5	157
Oregon.....				2			2	29	71	110	111	65	390
Pennsylvania.....	4		3	1	2	2	8	70	178	119	70	20	477
Rhode Island.....	1		1	1	2	1		8	16	19	12	4	65
South Carolina.....	11	10	3	6	7	7	7	5	11	12	10	10	99
South Dakota.....	2	1		2				7	16	25	19	4	76
Tennessee.....	1	2	1			5	7	13	17	21	18	6	91
Texas.....					4	6	22	51	87	46	23	27	266
Vermont.....			1				2		7	19	7		36
Virginia.....	1	8	3	1	4	6		10	10	14	13	2	72
Washington.....	1	1	2	2	1		1	10	59	110	76	29	292
West Virginia.....			1			2	2	35	70	72	34	13	229
Wisconsin.....	3	3	3	2	5	3	5	18	71	38	23	3	177
Wyoming.....							1	2	2	6	1		12

Poliomyelitis (infantile paralysis)—Deaths registered, 1927

State	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
Alabama.....	1	3	1	3	2	3	2	3	1	2		3	24
Arizona.....				3	3	5	5	2	8	1	1		28
Arkansas.....	1	4			3	2	4	6	2	2		1	27
California.....	1	3	2	1	3	8	42	41	42	32	24	21	220
Colorado.....		1				1			10	2	3	1	18
Connecticut.....		1						2	6	6	1		16
Delaware.....						1	1		1	3	1		2
District of Columbia.....						1	1	1	1	3			6
Florida.....				2	1	2		1	1			1	8
Idaho.....						1	1	1			1	4	8
Illinois.....		1	4		2	1	7	16	29	27	10	5	102
Indiana.....	1	2		1	2	2		5	7	11	13	1	45
Iowa.....			2	1	1			3	12	6	3	2	29
Kansas.....	2		1	1	3		6	10	13	9	3	1	49
Kentucky.....	2	3		2		4	3	7	16	12	8	3	60
Louisiana.....	1		4	4	3		7	7	4		2	6	38
Maine.....		1	1				1	2	6	5	6		22
Maryland.....	1	1	1							1	1	1	7
Massachusetts.....		1	2	2	1	2	3	28	45	51	21	10	166
Michigan.....	4	2	1		2		4	5	15	20	10	5	68
Minnesota.....	1	1	1	1		1	3	1	5	12	6	4	26
Missouri.....	3	3			4	2	3	7	29	24	10	3	88
Montana.....							1		1	1	1		4
Nebraska.....						1		1	7	4	6	3	22
New Hampshire.....				2				1	5	4	1	2	15
New Jersey.....		1	1	3	1	2	3	7	15	7	3	2	45
New York.....	4		3	5	6	2	6	25	41	24	9	6	132
North Carolina.....		2	2	2	1	2	1	1	2		2	2	17
North Dakota.....	1				2	1	1	1		1			7
Ohio.....	2	2	5	3			10	29	53	44	13	5	166
Oklahoma.....	1	3	3	1		3	3	6	15	8	9	3	55
Oregon.....				1		2		6	16	22	22	17	86
Pennsylvania.....	5	4	2			1	5	15	29	25	8	5	90
Rhode Island.....					1	1		2	4	2	1	1	12
South Carolina.....	2	1			4	4	2	2		5	2	2	24
South Dakota.....					1	2		1	4	6	5	2	21
Tennessee.....	1		2		1	2	3	2	7	2	8	6	34
Texas.....	2		4		6	3	14	28	18	24	10	18	127
Vermont.....									1	1	1	1	4
Virginia.....	2	2	3	2	2	5	2	3	4	4	6		35
Washington.....	1	1	1		1			5	10	18	22	9	68
West Virginia.....	1			2			1	5	11	11	8	3	42
Wisconsin.....	2	2			2		4	3	11	7	5	3	39
Wyoming.....								1					1

¹ Includes 1 death for which month is not given.

Poliomyelitis (infantile paralysis)—Cases reported, deaths registered, and indicated morbidity, mortality, and fatality rates, 1927; estimated expectancy and indicated annual rates based on years 1920–1926

State	Estimated population, July 1, 1927	Estimated expectancy			1927				
		Number of years	Cases	Cases per 1,000 inhabitants	Cases reported	Cases per 1,000 inhabitants	Deaths registered	Deaths per 1,000 inhabitants	Fatalities per 100 cases
Alabama.....	2,549,000	5	35	0.01	30	0.01	24	0.01	80.0
Arizona.....	459,000	7	6	.02	72	.16	28	.06	38.9
Arkansas.....	1,923,000	4	15	.01	61	.03	27	.01	44.3
California.....	4,433,000	7	204	.05	1,277	.29	220	.05	17.2
Colorado.....	1,074,000	5	11	.01	77	.07	18	.02	23.4
Connecticut.....	1,636,000	7	58	.04	188	.11	16	.01	8.5
Delaware.....	243,000	5	3	.01	4	.02	2	.01	5.0
District of Columbia.....	540,000	7	14	.03	14	.03	6	.01	42.9
Florida.....	1,363,000	7	13	.01	39	.03	8	.01	20.5
Georgia.....	3,171,000	5	12	.00	21	.01			
Idaho.....	534,000	5	10	.02	39	.07	8	.01	20.5
Illinois.....	7,296,000	7	235	.03	480	.07	102	.01	21.2
Indiana.....	3,150,000	6	43	.01	153	.05	45	.01	29.4
Iowa.....	2,425,000	6	55	.02	109	.04	29	.01	26.6
Kansas.....	1,828,000	6	71	.04	196	.11	49	.03	25.0
Kentucky.....	2,538,000				195	.08	60	.02	30.8
Louisiana.....	1,934,000	7	22	.01	73	.04	38	.02	52.1
Maine.....	793,000	7	16	.02	135	.17	22	.03	16.3
Maryland.....	1,597,000	7	54	.04	31	.02	7	.00	22.6
Massachusetts.....	4,242,000	7	224	.06	1,189	.28	166	.04	14.0
Michigan.....	4,490,000	7	78	.02	284	.06	68	.02	23.9
Minnesota.....	2,686,000	7	89	.04	140	.05	36	.01	25.7
Mississippi.....	1,791,000	7	36	.02	56	.03	20	.01	35.7
Missouri.....	3,510,000	5	31	.01	273	.08	88	.03	32.2
Montana.....	714,000	7	27	.04	22	.03	4	.01	18.2
Nebraska.....	1,396,000	7	31	.02	115	.08	22	.02	19.1
Nevada.....	177,000	6	4	.05	13	.17	4	.05	30.8
New Hampshire.....	455,000	7	13	.03	51	.11	15	.03	29.4
New Jersey.....	3,749,000	7	110	.03	332	.09	45	.01	13.6
New Mexico.....	392,000	7	7	.02	200	.51			
New York.....	11,423,000	7	771	.07	916	.08	132	.01	14.4
North Carolina.....	2,897,000	7	28	.01	24	.01	17	.01	70.8
North Dakota.....	¹ 641,000	7	22	.03	27	.04	7	.01	25.9
Ohio.....	6,710,000	7	123	.02	1,170	.17	166	.02	14.2
Oklahoma.....	2,384,000	2	36	.02	157	.07	55	.02	35.0
Oregon.....	890,000	7	14	.02	390	.44	86	.10	22.1
Pennsylvania.....	9,730,000	7	153	.02	477	.05	99	.01	20.8
Rhode Island.....	704,000	7	18	.03	65	.09	12	.02	18.5
South Carolina.....	1,845,000				99	.05	24	.01	24.2
South Dakota.....	696,000	7	25	.04	76	.11	21	.03	27.6
Tennessee.....	2,485,000	3	22	.01	91	.04	34	.01	37.4
Texas.....	5,397,000	2	46	.01	266	.05	127	.02	47.7
Vermont.....	¹ 352,000	7	28	.08	36	.10	4	.01	11.1
Virginia.....	2,546,000	7	93	.04	72	.03	35	.01	48.6
Washington.....	1,562,000	7	25	.02	292	.19	68	.04	23.3
West Virginia.....	1,696,000	6	21	.01	229	.14	42	.02	18.3
Wisconsin.....	2,918,000	7	88	.03	177	.06	39	.01	22.0
Wyoming.....	241,000	7	3	.01	12	.05	1	.00	8.3

¹ Population estimated, Jan. 1, 1920.² Population, State census, 1925.

Rabies in animals—Cases reported, 1927

State	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
California.....	27	51	39	36	25	37	14	18	24	13	50	42	376
Connecticut.....	1		2	7	10	11	4	2	2	8	5	5	57
Delaware.....					1	1	1	1					4
District of Columbia.....	5	7	4	8	6	4	7	6	4	4	5	2	62
Idaho.....	2	1	1	2	3				1	1		1	12
Kansas.....	9		7	14	12	4	1	1	13	9	9	5	84
Maine.....							1	1				1	3
Maryland.....	9	13	20	13	18	15	7	10	8	14	4	7	138
Massachusetts.....	68	72	81	61	63	71	76	36	39	72	78	106	823
Minnesota.....												1	1
Mississippi.....	22	15	8	18	6	6	12	12	11	12	6	11	140
Missouri.....	16	4	19	14	3	1	2	2	6	3	2	4	76
New Mexico.....	3		3	6	1	2	1			2		1	19
New York ²	19	19	24	25	33	34	24	11	9	11	9	24	242
Oregon.....	2	2	4	2	1	2	1	1	2	2	2		21
Pennsylvania.....	28	24	96	59	59	35	25	14	54	22	15	31	462
South Carolina.....	23	19	26	24	21	18	16	10	6	4	18	16	201
South Dakota.....				1									1
Vermont.....		16	4	4	1	3		1					29
Washington.....				1	1								2

¹ Includes 1 case for which month is not given.² Exclusive of New York City.*Rabies in man—Deaths registered, 1927*

State	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
Alabama.....				1	1							2	4
Arizona.....												1	1
California.....										1			1
Florida.....		1											1
Illinois.....							1	2	1	1	2	4	11
Indiana.....				1			1						2
Iowa.....					2				1				1
Kansas.....													2
Kentucky.....										1			1
Louisiana.....		1	1		1	1	1			1			6
Maine.....												1	1
Maryland.....								1		1			2
Massachusetts.....							1			1			2
Michigan.....									1	1		1	3
Missouri.....	1												1
New Jersey.....	1			1		1	1		1		1		6
New York.....			1	2	1				1			1	6
North Carolina.....		2		1		1							4
Ohio.....	2		2	1				2		1		2	10
Oklahoma.....								1					1
Pennsylvania.....				1	2	1	2	1			1	2	10
Tennessee.....						3	2	1	1				7
Texas.....				1					1				2
West Virginia.....	1						1	1					3
Wisconsin.....								1					1

Rocky Mountain spotted (or tick) fever—Cases reported, 1927

State	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
California.....							1	1					2
Colorado.....													19
Idaho.....		2	2	5	5	7	1			1			23
Montana.....				11	12	10	3	1					37
Nevada.....													17
New Mexico.....					1								1
Oregon.....			1	9	8	6	2						26
Washington.....					1	1							2
Wyoming.....				14	30	41	19	1	1				106

¹ Month not given.

Rocky Mountain spotted (or tick) fever—Deaths registered, 1927

State	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
Colorado.....				1	2		2						5
Idaho.....					1	4			2				7
Montana.....				1	2	1	1						5
Nevada.....													2
Oregon.....				3	2	1	1						7
Wyoming.....				4	6	7	1			1			19

¹ Month not given.

Scarlet fever—Monthly estimated expectancy based on data which are available for the years 1920-1926, inclusive

State	Number of years included	January	February	March	April	May	June	July	August	September	October	November	December	Total
Alabama.....	7	58	58	34	41	27	24	38	59	78	119	111	72	719
Arizona.....	7	25	20	34	36	23	24	4	8	13	25	39	39	290
Arkansas.....	7	36	32	23	19	15	15	15	17	26	48	64	48	358
California.....	7	685	628	689	486	571	408	254	179	236	474	847	667	6,124
Colorado.....	7	205	109	173	118	140	88	37	44	57	119	166	217	1,473
Connecticut.....	7	459	375	442	397	348	230	121	81	102	201	343	436	3,535
Delaware.....	7	39	39	42	35	42	33	10	9	17	42	67	79	454
District of Columbia.....	7	130	103	125	102	96	56	21	19	25	59	77	95	908
Florida.....	7	15	19	15	12	5	9	4	6	5	12	17	18	137
Georgia.....	7	41	37	48	33	31	20	19	23	37	59	74	48	470
Idaho.....	7	66	56	31	29	22	12	16	12	13	29	62	45	393
Illinois.....	7	1,967	2,099	2,050	1,507	1,397	780	351	261	444	891	1,279	1,516	14,542
Indiana.....	7	809	892	674	856	484	276	129	103	155	448	567	557	5,930
Iowa.....	7	295	275	279	207	137	112	61	54	125	220	328	338	2,431
Kansas.....	7	601	395	346	285	212	113	100	178	272	446	445	492	3,885
Kentucky.....	3	132	107	102	90	76	37	20	36	47	98	135	93	973
Louisiana.....	7	45	41	41	24	23	11	12	17	16	34	57	55	376
Maine.....	7	147	116	118	95	127	81	67	62	53	94	139	149	1,248
Maryland.....	7	398	416	354	263	223	152	54	59	90	197	203	329	2,738
Massachusetts.....	7	1,289	1,192	1,258	1,148	996	715	337	231	287	566	807	988	9,814
Michigan.....	7	1,452	1,391	1,525	1,356	1,128	917	434	316	522	886	1,150	1,373	12,450
Minnesota.....	7	1,246	880	853	672	722	448	336	296	416	708	862	1,068	8,507
Mississippi.....	7	65	33	28	27	29	20	25	40	63	88	88	88	564
Missouri.....	5	502	580	665	508	543	343	155	121	184	435	555	660	5,257
Montana.....	7	147	99	81	75	69	38	37	30	34	87	105	133	933
Nebraska.....	7	274	203	203	139	100	56	32	36	58	124	162	204	1,591
Nevada.....	5	8	4	7	5	5	4	1	2	4	8	2	7	57
New Hampshire.....	7	86	60	58	62	76	46	10	16	23	41	55	65	598
New Jersey.....	7	949	902	948	805	828	516	190	116	173	330	563	783	7,103
New Mexico.....	7	57	45	46	33	29	13	6	7	14	35	42	42	369
New York.....	7	2,537	2,770	3,102	2,445	2,308	1,540	618	383	486	903	1,630	2,225	20,947
North Carolina.....	7	207	124	117	87	80	76	54	89	213	388	445	285	2,165
North Dakota.....	7	225	231	157	101	71	52	39	55	67	116	178	201	1,493
Ohio.....	7	1,692	1,713	1,742	1,419	1,361	747	374	405	554	1,310	1,575	1,695	14,587
Oklahoma.....	6	55	35	73	37	35	32	23	36	46	82	112	119	679
Oregon.....	7	140	112	75	82	65	52	34	30	57	81	102	102	932
Pennsylvania.....	7	2,210	2,298	2,172	2,106	1,639	1,052	517	439	722	1,396	1,914	2,167	18,632
Rhode Island.....	7	100	100	117	59	77	37	28	15	22	41	64	82	742
South Carolina.....	6	21	9	12	8	7	6	8	15	23	35	37	17	198
South Dakota.....	7	241	214	213	199	156	88	55	54	108	160	194	204	1,886
Tennessee.....	6	87	98	65	72	68	33	24	58	125	178	158	169	1,135
Texas.....	7	100	99	68	72	75	62	40	43	48	57	122	187	973
Vermont.....	7	91	83	69	68	57	38	35	23	39	33	90	83	709
Virginia.....	7	338	222	214	146	101	71	79	110	197	368	428	400	2,674
Washington.....	7	300	227	218	214	127	112	69	61	111	163	179	206	1,987
West Virginia.....	7	242	145	167	138	147	71	70	80	127	340	315	243	2,085
Wisconsin.....	7	817	721	709	796	558	425	266	173	266	461	607	718	6,517
Wyoming.....	7	35	30	24	21	34	10	7	7	13	21	38	33	273

Scarlet fever—Cases reported, 1927

State	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
Alabama.....	122	70	66	62	30	35	36	71	96	133	138	132	991
Arizona.....	36	94	92	67	54	30	13	10	1	10	19	11	437
Arkansas.....	44	49	65	19	21	15	9	9	38	68	88	51	476
California.....	1,162	1,156	1,210	830	719	672	248	243	296	485	794	728	8,543
Connecticut.....	428	437	538	424	390	277	85	38	64	113	223	302	3,319
Delaware.....	167	158	138	65	31	10	8	3	8	9	15	15	627
District of Columbia.....	123	78	111	91	81	65	33	17	38	63	109	135	944
Florida.....	97	65	61	50	27	21	14	13	24	36	47	46	501
Georgia.....	120	88	71	62	49	44	35	51	74	162	112	111	979
Idaho.....	294	171	123	115	56	25	20	15	23	62	105	84	1,093
Illinois.....	1,567	1,584	1,626	1,145	1,043	806	397	314	400	677	999	1,229	11,787
Indiana.....	1,108	1,342	946	902	472	368	142	104	161	396	481	421	6,933
Iowa.....	310	339	377	197	125	115	73	45	48	148	227	314	2,318
Kansas.....	810	779	779	462	266	164	112	132	204	304	445	567	5,114
Kentucky.....	247	177	125	121	96	57	44	49	91	165	239	267	1,678
Louisiana.....	66	53	35	41	21	15	18	28	21	43	80	57	478
Maine.....	161	108	124	144	148	91	89	58	69	160	189	209	1,550
Maryland.....	358	343	366	285	267	159	87	46	64	134	223	133	2,465
Massachusetts.....	2,159	2,129	2,517	2,015	1,811	1,587	643	349	432	728	968	1,217	16,546
Michigan.....	1,435	1,424	1,639	1,077	1,100	921	435	296	345	489	814	1,011	10,986
Minnesota.....	1,222	1,161	1,266	824	765	477	260	194	231	396	641	571	8,008
Mississippi.....	104	101	61	38	29	21	30	47	98	174	184	128	1,017
Missouri.....	776	693	579	600	329	175	120	93	130	428	390	508	4,821
Montana.....	514	444	304	287	102	62	47	159	35	65	100	90	2,209
Nebraska.....	256	266	251	314	111	74	53	53	60	168	148	252	2,006
New Hampshire.....	66	53	61	66	36	34	20	15	21	34	66	48	520
New Jersey.....	1,317	1,443	1,681	1,409	1,426	827	271	138	178	275	481	595	10,041
New Mexico.....	139	109	62	55	52	34	33	29	28	55	42	63	701
New York.....	3,001	4,136	5,694	4,752	3,945	2,202	764	380	448	698	1,265	1,911	29,196
North Carolina.....	304	176	149	84	68	49	71	108	257	535	529	317	2,638
North Dakota.....	295	302	300	327	140	89	83	66	60	159	193	215	2,235
Ohio.....	1,946	2,059	2,413	1,752	1,279	750	376	299	437	843	1,018	1,185	14,357
Oklahoma.....	236	201	205	258	101	43	59	29	87	201	147	205	1,772
Oregon.....	323	213	253	148	118	45	34	31	41	91	87	135	1,519
Pennsylvania.....	2,477	2,742	2,999	2,387	2,027	1,276	855	343	739	1,070	1,626	2,073	20,614
Rhode Island.....	100	114	160	106	77	112	53	39	56	94	122	164	1,197
South Carolina.....	70	46	31	26	28	13	34	52	68	143	155	100	766
South Dakota.....	359	418	416	287	121	73	58	28	62	126	191	205	2,344
Tennessee.....	341	213	196	191	108	47	77	71	155	292	223	192	2,106
Texas.....	216	198	187	111	43	31	38	36	87	133	241	275	1,596
Vermont.....	47	39	60	54	38	30	18	16	30	52	46	54	484
Virginia.....	367	239	201	166	123	83	75	94	223	359	422	316	2,668
Washington.....	545	483	458	306	175	173	80	55	71	203	210	222	2,981
West Virginia.....	242	254	140	195	137	115	128	109	167	344	238	298	2,367
Wisconsin.....	934	929	764	804	589	422	290	199	232	368	480	740	6,751
Wyoming.....	142	103	134	71	86	38	27	10	19	54	89	87	859

¹ Includes 2 cases for which month is not given.

Scarlet fever—Deaths registered, 1927

State	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
Alabama.....	4	4	2	2				1	4	1	2	3	23
Arizona.....	1	1	1		1	2							6
Arkansas.....	2		1	1	3				1	3	1	3	15
California.....	14	7	4	6	4	4	5		2	5	6	5	62
Colorado.....	9	4	7	9	7	5	2	3	3	1	1	3	54
Connecticut.....	2		5	5	2	1			1	2		4	22
Delaware.....			1			1							2
District of Columbia.....		1			1			1			1	4	8
Florida.....	2		1	2	2		1		2		1		12
Idaho.....	1	2	1	1	1	3		1				1	11
Illinois.....	25	29	20	19	21	5	5	4	8	8	8	17	169
Indiana.....	12	16	9		8	7	2	1	3	8	9	5	80
Iowa.....	11	10	5	1	4	2	1	1	2	3		5	45
Kansas.....	12	9	9	8	4	3	3	1	2	3	6	12	72
Kentucky.....	6	6	2	2	2	6	1	2	2	5		6	40
Louisiana.....		1	1		3		1	1		1	2	1	12
Maine.....	4	5	1	2	4	2	3	2	3	2		3	31
Maryland.....		5		5	2			2			1	2	18
Massachusetts.....	14	28	18	13	16	12	6	9	4	7	9	8	144
Michigan.....	23	19	25	17	15	19	6	3	9	9	7	17	169
Minnesota.....	11	14	12	7	13	4	2	1		3	10	15	92
Missouri.....	11	7	12	10	9	7	1	2	5	11	6	6	87
Montana.....	5	4	6	4	2			4					25
Nebraska.....	3	3	2	1		2	1	3		1	1	1	18
New Hampshire.....		2	2	4	3	1		2			2		16
New Jersey.....	9	18	18	15	13	9	1	2		3	3	3	94
New York.....	18	21	25	40	26	16	12	13	1	8	9	17	206
North Carolina.....	3	3	5		2		1	1	4	3	4	4	30
North Dakota.....	1	1	1	2	1		2					2	10
Ohio.....	18	25	25	20	12	10	6	4	2	7	13	12	154
Oklahoma.....	4	7	2	2	5	3	1	1	3	3	6	2	39
Oregon.....		5	5	1				2				2	15
Pennsylvania.....	31	30	37	31	27	17	12	6	8	6	25	19	249
Rhode Island.....	1	1	2			2	2		1	1		3	13
South Carolina.....									2	1		1	4
South Dakota.....	1	6	8	5	3	1	5	2		2	5		38
Tennessee.....	4	5	5	5	2	2		2	4	6	4	6	45
Texas.....	4	2	5	5	2	3	4		3	2	6	2	38
Vermont.....	3	1	1	1	1	1	1		2				11
Virginia.....	6	4		2		3	1		5	6	1	2	30
Washington.....	6	6	6	4	3	2	3			1	2	3	36
West Virginia.....	5	2	3	1	3	2	1	5	4	4	7	8	45
Wisconsin.....	4	4	9	12	5	8	2	2	4	2	4	4	60
Wyoming.....		1	3		1	1				1			7

Scarlet fever—Cases reported, deaths registered, indicated morbidity, mortality, and fatality rates, 1927; estimated expectancy and indicated annual rates, based on years 1920-1926

State	Estimated population, July 1, 1927	Estimated expectancy			1927				
		Number of years	Cases	Cases per 1,000 inhabitants	Cases reported	Cases per 1,000 inhabitants	Deaths registered	Deaths per 1,000 inhabitants	Fatalities per 100 cases
Alabama.....	2,549,000	7	719	0.29	991	0.39	23	0.01	2.3
Arizona.....	459,000	7	290	.74	437	.95	6	.01	1.4
Arkansas.....	1,923,000	7	358	.20	476	.25	15	.01	3.2
California.....	4,433,000	7	6,124	1.58	8,543	1.93	62	.01	0.7
Colorado.....	1,074,000	7	1,473	1.47	5,290	4.93	54	.05	1.0
Connecticut.....	1,636,000	7	3,535	2.36	3,319	2.03	22	.01	.7
Delaware.....	243,000	7	454	1.96	627	2.58	2	.01	.3
District of Columbia.....	540,000	7	908	1.88	944	1.75	8	.01	.8
Florida.....	1,363,000	7	137	.12	501	.37	12	.01	2.4
Georgia.....	3,171,000	7	470	.16	979	.31			
Idaho.....	534,000	7	393	.82	1,093	2.05	11	.02	1.0
Illinois.....	7,296,000	7	14,542	2.12	11,787	1.62	169	.02	1.4
Indiana.....	3,150,000	7	5,950	1.96	6,933	2.20	80	.03	1.2
Iowa.....	2,425,000	7	2,431	1.01	2,318	.96	45	.02	1.9
Kansas.....	1,828,000	7	3,885	2.16	5,114	2.80	72	.04	1.4
Kentucky.....	2,538,000	3	973	.39	1,678	.66	40	.02	2.4
Louisiana.....	1,934,000	7	376	.20	478	.25	12	.01	2.5
Maine.....	793,000	7	1,248	1.60	1,550	1.95	31	.04	2.0
Maryland.....	1,597,000	7	2,738	1.80	2,465	1.54	18	.01	.7
Massachusetts.....	4,242,000	7	9,814	2.43	16,546	3.90	144	.03	.9
Michigan.....	4,490,000	7	12,450	3.08	10,986	2.45	160	.04	1.5
Minnesota.....	2,686,000	7	8,507	3.37	8,008	2.98	92	.03	1.1
Mississippi.....	1,791,000	7	594	.33	1,017	.57	16	.01	1.6
Missouri.....	3,510,000	5	5,251	1.52	4,821	1.37	87	.02	1.8
Montana.....	714,000	7	935	1.50	2,209	3.09	25	.04	1.1
Nebraska.....	1,396,000	7	1,591	1.19	2,006	1.44	18	.01	.9
Nevada.....	177,000	5	57	.74	65	.84	1	.01	1.5
New Hampshire.....	455,000	7	598	1.33	520	1.14	16	.04	3.1
New Jersey.....	3,749,000	7	7,103	2.07	10,041	2.68	94	.03	.9
New Mexico.....	392,000	7	369	.98	701	1.79			
New York.....	11,423,000	7	20,947	1.92	29,196	2.56	206	.02	.7
North Carolina.....	2,897,000	7	2,165	.80	2,638	.91	30	.01	1.1
North Dakota.....	641,000	7	1,493	2.32	2,235	3.49	10	.02	.4
Ohio.....	6,710,000	7	14,587	2.36	14,357	2.14	154	.02	1.1
Oklahoma.....	2,384,000	6	679	.31	1,772	.74	39	.02	2.2
Oregon.....	890,000	7	932	1.12	1,519	1.71	15	.02	1.0
Pennsylvania.....	9,730,000	7	18,632	2.03	20,614	2.12	249	.03	1.2
Rhode Island.....	704,000	7	742	1.13	1,197	1.70	13	.02	1.1
South Carolina.....	1,845,000	6	198	.11	766	.42	4	.00	.5
South Dakota.....	696,000	7	1,886	2.83	2,344	3.37	38	.05	1.6
Tennessee.....	2,485,000	6	1,135	.47	3,106	.85	45	.02	2.1
Texas.....	5,397,000	7	973	.19	1,596	.30	38	.01	2.4
Vermont.....	352,000	7	709	2.01	484	1.37	11	.03	2.3
Virginia.....	2,546,000	7	2,674	1.11	2,668	1.05	30	.01	1.1
Washington.....	1,562,000	7	1,987	1.37	2,981	1.91	36	.02	1.2
West Virginia.....	1,696,000	7	2,085	1.33	2,367	1.40	45	.03	1.9
Wisconsin.....	2,918,000	7	6,517	2.36	6,751	2.31	60	.02	.9
Wyoming.....	241,000	7	273	1.26	859	3.56	7	.03	.8

¹ Population estimated, Jan. 1, 1920.

² Population, State census, 1925.

Septic sore throat—Cases reported, 1927

State	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
Connecticut.....	13	14	15	11	10	17	3	5	6	5	10	10	119
Delaware.....												1	1
Georgia.....	38	47	22	35	23	15	14	33	27	47	43	50	394
Idaho.....	2						1	6	1	4			14
Illinois.....	5	11	7	6	10	9	4	3	5	8	4	4	76
Kansas.....	7		2		1	1	2	1		2	2		18
Maine.....	3	2			1		2	1		18	2		31
Maryland.....	16	22	21	15	14	7	4	8	3	9	16	5	140
Massachusetts.....	24	16	11	21	14	7	9	9	9	2	9	9	140
Missouri.....	2	18	43	4	9	5	18	5	2	7	2	16	131
Montana.....	3						4	3			1	1	12
Nebraska.....	13	6	25	2	3			7	2	5	3	6	72
New Hampshire.....		3	1	3	2	1	6	6	3		11	15	51
New Mexico.....					1					1		2	5
New York.....	34	21	23	20	19	19	7	5	4	6	5	10	173
North Carolina.....	4	15	2	4	13	9	2	2	51	9	13	3	127
Ohio.....	1	62	102	2	73	92	54	50	56	2	83	82	659
Oklahoma.....		1	1	3	4		9		9	20	14	11	63
Oregon.....	15	4	7	10	7	6	6	6	2	8	6	7	84
Rhode Island.....	2	2	4	1	1	2	2	3	4	1	1		23
Tennessee.....				3	3		3	2	5	5		2	23
Washington.....		1											2
Wyoming.....	1					3							4

Septic sore throat—Deaths registered, 1927

State	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
Connecticut.....	1	1	1	2		1			4	2	1		13
Delaware.....												1	1
Indiana.....	7	16	12	8	9	18	12	14	11	9	9	14	139
Iowa.....	2	3	5	5	2	4	5	3	3	3	2	1	38
Louisiana.....	1	1	1	1	2	1			3	3	2	3	18
Maine.....	1	1					1	1	1	2	1	1	9
Maryland.....		1	1	2	1		3		2		1	1	12
Massachusetts.....	5	4	5	6	8	3	3	2	6	2	4	2	50
Michigan.....	27	19	19	35	23	25	15	17	16	18	24	17	255
Montana.....				2	1	2	1			1	2	2	11
New Hampshire.....						3				2			5
New York.....	11	16	17	16	22	8	11	5	4	13	12	15	150
North Carolina.....	2	1	2				1		1		1	1	9
Ohio.....	1									1		2	4
Oklahoma.....	4	5	3		2	4	2	7	6	2	6	1	42
Oregon.....			1		1						1		3
Pennsylvania.....	2	1	1		1	1							6
Texas.....	7	6	1	5	10	4	7	9	7	4	1	12	73
Vermont.....	2			1			1	2	2	1			9
Wyoming.....			1	1	1								3

Septic sore throat—Cases reported, deaths registered, indicated morbidity and mortality rates, and number of cases reported for each death registered, 1927

State	Estimated population, July 1, 1927	Cases reported, 1927	Cases per 1,000 inhabitants	Deaths registered, 1927	Deaths per 1,000 inhabitants	Cases reported for each death registered
Colorado.....	1,074,000	16	0.01	0	.....	.....
Connecticut.....	1,636,000	119	.07	13	0.01	9.2
Delaware.....	243,000	1	.00	1	.00	1.0
Georgia.....	3,171,000	394	.12	.....	.....	.....
Idaho.....	534,000	14	.03	.....	.....	.....
Illinois.....	7,296,000	76	.01	² 22	.....	.....
Indiana.....	3,150,000	.....	.....	139	.04	.....
Iowa.....	2,425,000	.....	.....	38	.02	.....
Kansas.....	1,828,000	18	.01	0	.....	.....
Louisiana.....	1,934,000	.....	.....	18	.01	.....
Maine.....	793,000	31	.04	9	.01	3.4
Maryland.....	1,597,000	140	.09	12	.01	11.7
Massachusetts.....	4,242,000	140	.03	50	.01	2.8
Michigan.....	4,490,000	.....	.....	255	.06	.....
Missouri.....	3,510,000	131	.04	0	.....	.....
Montana.....	714,000	12	.02	11	.02	1.1
Nebraska.....	1,396,000	72	.05	0	.....	.....
New Hampshire.....	455,000	51	.11	5	.01	10.2
New Mexico.....	392,000	5	.01	.....	.....	.....
New York.....	11,423,000	173	.02	150	.01	1.2
North Carolina.....	2,897,000	127	.04	9	.00	41.1
Ohio.....	6,710,000	659	.10	4	.00	164.7
Oklahoma.....	2,384,000	63	.03	42	.02	1.5
Oregon.....	890,000	84	.09	3	.00	28.0
Pennsylvania.....	9,730,000	.....	.....	6	.00	.....
Rhode Island.....	704,000	23	.03	.....	.....	.....
Tennessee.....	2,485,000	23	.01	0	.....	.....
Texas.....	5,397,000	.....	.....	73	.01	.....
Vermont.....	1352,000	.....	.....	9	.03	.....
Washington.....	1,562,000	2	.00	0	.....	.....
Wyoming.....	241,000	4	.02	3	.01	1.3

¹ Population estimated, Jan. 1, 1920.

² For Chicago only.

Smallpox—Monthly estimated expectancy based on data which are available for the years 1920-1926, inclusive

State	Number of years included	January	February	March	April	May	June	July	August	September	October	November	December	Total
Alabama.....	7	151	136	220	277	186	123	65	25	16	12	26	145	1,382
Arizona.....	7	14	16	21	11	21	15	3	2	1	1	1	4	110
Arkansas.....	7	32	51	37	38	53	37	14	11	7	3	18	12	313
California.....	7	606	657	653	337	306	225	188	135	91	2	190	288	4,149
Colorado.....	4	8	6	8	4	5	3	4	1	2	3	7	3	53
Connecticut.....	7	2	1	1	2	1	2	2	2	1	—	1	1	16
Delaware.....	7	—	1	—	1	1	1	1	—	—	—	—	—	5
District of Columbia.....	7	3	9	13	7	10	2	1	1	—	1	—	—	47
Florida.....	7	52	38	52	28	21	20	6	7	3	11	14	21	273
Georgia.....	7	93	139	124	96	132	72	48	21	7	30	44	51	857
Idaho.....	7	51	37	61	52	49	41	18	10	10	11	22	35	397
Illinois.....	7	369	298	220	197	162	193	102	30	23	39	76	137	1,846
Indiana.....	7	495	419	441	445	367	266	118	73	26	61	153	232	3,096
Iowa.....	7	163	157	128	115	135	96	22	18	13	29	43	90	1,009
Kansas.....	5	39	54	63	60	74	47	29	11	5	14	28	35	459
Louisiana.....	7	123	110	141	105	80	33	21	12	9	11	24	53	722
Maine.....	7	6	2	4	9	3	4	9	1	1	1	1	1	42
Maryland.....	7	1	3	2	6	4	4	1	1	1	1	1	1	26
Massachusetts.....	7	1	1	1	1	1	1	1	—	—	—	—	—	9
Michigan.....	7	443	155	143	130	129	117	118	51	44	53	91	118	1,592
Minnesota.....	7	451	275	274	235	172	93	102	60	37	90	178	220	2,187
Mississippi.....	7	141	108	101	121	77	39	22	29	11	23	40	95	807
Missouri.....	5	56	60	75	55	77	44	29	6	8	9	20	43	482
Montana.....	7	105	108	88	53	47	25	29	13	20	42	75	83	688
Nebraska.....	5	61	66	73	61	56	46	22	8	6	20	26	67	512
Nevada.....	5	5	16	5	8	1	1	1	1	1	1	1	1	42
New Hampshire.....	7	1	—	—	1	1	1	1	—	—	—	—	—	6
New Jersey.....	7	8	7	41	27	3	13	11	1	—	1	1	3	116
New Mexico.....	7	7	7	10	17	9	1	1	1	1	1	1	1	60
New York.....	7	40	43	38	14	29	39	28	22	9	17	22	50	351
North Carolina.....	7	335	340	475	370	313	174	101	62	43	55	82	152	2,502
North Dakota.....	7	50	38	38	38	51	19	17	14	13	24	39	68	400
Ohio.....	7	463	490	576	540	458	464	124	83	41	71	172	267	3,749
Oklahoma.....	6	143	167	184	152	110	64	24	5	7	25	31	52	964
Oregon.....	7	245	186	144	119	113	93	58	40	24	75	80	94	1,271
Pennsylvania.....	7	18	11	19	20	29	24	9	1	1	1	4	10	147
Rhode Island.....	7	—	—	1	—	1	—	—	—	—	—	1	—	3
South Carolina.....	6	62	75	66	70	74	59	22	15	9	22	26	72	572
South Dakota.....	7	59	43	47	57	20	39	14	5	13	25	39	42	403
Tennessee.....	6	229	294	187	221	238	69	31	26	14	21	34	57	1,421
Texas.....	7	157	240	187	268	242	138	55	41	17	13	15	49	1,422
Vermont.....	3	—	3	—	—	—	1	—	—	—	1	—	1	6
Virginia.....	7	92	46	75	61	76	61	35	11	8	11	19	35	530
Washington.....	7	384	323	283	253	192	115	114	68	53	85	167	272	2,309
West Virginia.....	5	48	53	72	72	41	43	27	13	10	6	17	21	423
Wisconsin.....	5	192	146	132	113	147	125	74	35	31	64	82	104	1,245
Wyoming.....	7	7	5	6	2	6	4	2	—	3	3	12	10	60

Smallpox—Cases reported, 1927

State	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
Alabama.....	242	224	197	239	101	97	66	10	11	9	28	18	1,242
Arizona.....		2		4	1		1						10
Arkansas.....	20	22	19	20	7	23	11	11	1	8	11	13	166
California.....	163	110	111	154	122	79	43	29	32	22	51	68	984
Delaware.....		1											1
District of Columbia.....	1	3			9	30	14	3	1		2		63
Florida.....	169	281	187	307	185	165	24	13	13	1	8	3	1,356
Georgia.....	419	523	370	283	140	56	77	8	13	15	11	49	1,934
Idaho.....	103	76	106	120	66	62	60	25	26	47	36	32	750
Illinois.....	172	117	212	113	150	63	67	31	52	39	120	100	1,236
Indiana.....	729	586	631	872	443	487	284	94	69	20	237	357	4,809
Iowa.....	45	38	116	70	39	91	87	37	32	84	185	455	1,279
Kansas.....	225	183	191	96	89	71	41	10	10	81	141	255	1,393
Kentucky.....	23	28	53	35	24	15	51	20	11	3	23	108	394
Louisiana.....	48	21	41	25	20	28	13	3	16	13	30	28	286
Maine.....				1									1
Maryland.....	1	1	2			5							9
Massachusetts.....											1	1	2
Michigan.....	175	180	189	128	187	151	94	59	53	38	71	144	1,469
Minnesota.....	20	37	8	13	7	10	12		2	5	5		126
Mississippi.....	129	35	25	23	31	10	18	7	11	46	17	16	368
Missouri.....	81	79	332	121	68	95	61	22	29	70	308	190	1,456
Montana.....	41	37	84	34	23	45	11	1	27	79	109	84	575
Nebraska.....	107	65	122	124	30	38	45	15	9	8	33	95	691
New Jersey.....	2					2			6			12	22
New Mexico.....	7	18	23	8	9	2	15	2		5		1	90
New York.....	55	31	53	23	41	18	28	12	26	18	35	36	376
North Carolina.....	276	259	260	183	179	94	46	34	37	41	90	203	1,702
North Dakota.....	33	18	13	35	5	6	13	13	4	23	35	10	208
Ohio.....	222	206	232	166	204	197	94	21	34	50	46	86	1,558
Oklahoma.....	119	166	190	163	165	161	98	48	55	57	94	328	1,644
Oregon.....	176	130	88	89	72	89	56	37	40	95	135	180	1,167
Pennsylvania.....			1		1	2	11	1				3	19
Rhode Island.....										4	1		5
South Carolina.....	69	67	90	96	67	35	35	38	12	14	37	17	577
South Dakota.....	34	23	73	42	16	25	34	31	15	45	13	52	403
Tennessee.....	46	71	95	100	68	54	55	25	17	35	19	63	648
Texas.....	584	468	293	300	321	93	58	39	5	21	76	83	2,341
Virginia.....	232	184	81	150	183	56	27	16	3	14	28	4	978
Washington.....	262	217	242	204	195	145	125	25	37	63	104	187	1,806
West Virginia.....	29	97	173	193	116	133	116	47	28	22	18	127	1,099
Wisconsin.....	92	58	29	42	147	73	83	35	50	52	99	178	938
Wyoming.....		1	14	9	13	7	15		2	2	33	14	110

Smallpox—Deaths registered, 1927

State	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
Alabama.....		3	2										5
Arkansas.....			1										1
California.....	2		1	1	1								5
Colorado.....	1			1	1								2
Florida.....	1	4	3	1	2	1							12
Illinois.....					1						1		3
Indiana.....	2		1	3	2	3	2					2	15
Iowa.....						2							2
Kansas.....						1							1
Kentucky.....		1	1	1					1	2		6	12
Louisiana.....		1	1			1						2	5
Missouri.....	2	2	1				3	1	1				12
Nebraska.....				1									1
North Carolina.....	1	5		3	5								14
Ohio.....	1	2	4	1		1						1	10
Oklahoma.....	2				1	2				1			6
Oregon.....		2			1	1		1					5
South Carolina.....	1		1		1		1						4
South Dakota.....	1					1							2
Tennessee.....				2	1								3
Texas.....	7	6	1	5	2						1		22
Virginia.....	1	1		1	1								4
Washington.....	1		1	1		1	1					3	8
West Virginia.....				1							1		2
Wisconsin.....		1		1		1	1		1				5

Smallpox—Cases reported, deaths registered, and indicated morbidity, mortality, and fatality rates, 1927; estimated expectancy and indicated annual rates based on years 1920–1926

State	Estimated population, July 1, 1927	Estimated expectancy			1927				
		Number of years	Cases *	Cases per 1,000 inhabitants	Cases reported	Cases per 1,000 inhabitants	Deaths registered	Deaths per 1,000 inhabitants	Fatalities per 100 cases
Alabama.....	2,549,000	7	1,382	0.57	1,242	0.49	5	0.00	0.4
Arizona.....	459,000	7	110	.28	10	.02	0	.....	.....
Arkansas.....	1,923,000	7	313	.17	166	.09	1	.00	.6
California.....	4,433,000	7	4,149	1.07	984	.22	5	.00	.5
Colorado.....	1,074,000	4	53	.05	353	.33	2	.00	.6
Connecticut.....	1,636,000	7	16	.01	0	.....	0	.....	.....
Delaware.....	243,000	7	5	.02	1	.00	0	.....	.....
District of Columbia.....	540,000	7	47	.10	63	.12	0	.....	.....
Florida.....	1,363,000	7	273	.23	1,356	.99	12	.01	.9
Georgia.....	3,171,000	7	857	.28	1,934	.61	.....	.....	.....
Idaho.....	534,000	7	397	.83	759	1.42	0	.....	.....
Illinois.....	7,296,000	7	1,846	.27	1,236	.17	3	.00	.2
Indiana.....	3,150,000	7	3,096	1.02	4,809	1.53	15	.00	.3
Iowa.....	2,425,000	7	1,009	.42	1,279	.53	2	.00	.2
Kansas.....	1,828,000	5	459	.26	1,393	.76	1	.00	.1
Kentucky.....	2,588,000	.....	.....	.....	394	.16	12	.00	3.0
Louisiana.....	1,934,000	7	722	.39	286	.15	5	.00	1.7
Maine.....	793,000	7	42	.05	1	.00	0	.....	.....
Maryland.....	1,597,000	7	26	.02	9	.01	0	.....	.....
Massachusetts.....	4,242,000	7	9	.00	2	.00	0	.....	.....
Michigan.....	4,490,000	7	1,592	.39	1,469	.33	0	.....	.....
Minnesota.....	2,686,000	7	2,187	.87	126	.05	0	.....	.....
Mississippi.....	¹ 1,791,000	7	807	.45	368	.21	4	.00	1.1
Missouri.....	3,510,000	5	482	.14	1,456	.41	12	.00	.8
Montana.....	714,000	7	688	1.10	575	.81	0	.....	.....
Nebraska.....	1,396,000	5	512	.38	691	.49	1	.00	.1
Nevada.....	¹ 77,000	5	42	.55	56	.73	0	.....	.....
New Hampshire.....	455,000	7	6	.01	0	.....	0	.....	.....
New Jersey.....	3,749,000	7	116	.03	22	.01	0	.....	.....
New Mexico.....	392,000	7	60	.16	90	.23	.....	.....	.....
New York.....	11,423,000	7	351	.03	376	.03	0	.....	.....
North Carolina.....	2,897,000	7	2,502	.92	1,702	.59	14	.00	.8
North Dakota.....	² 641,000	7	409	.64	208	.32	0	.....	.....
Ohio.....	6,710,000	7	3,749	.61	1,558	.23	10	.00	.6
Oklahoma.....	2,384,000	6	964	.44	1,644	.69	6	.00	.4
Oregon.....	890,000	7	1,271	1.53	1,167	1.31	5	.01	.4
Pennsylvania.....	9,730,000	7	147	.02	19	.00	0	.....	.....
Rhode Island.....	704,000	7	3	.00	5	.01	0	.....	.....
South Carolina.....	1,845,000	6	572	.33	577	.31	4	.00	.7
South Dakota.....	696,000	7	403	.61	403	.58	2	.00	.5
Tennessee.....	2,485,000	6	1,421	.59	648	.26	3	.00	.5
Texas.....	5,397,000	7	1,422	.28	2,341	.43	22	.00	.9
Vermont.....	¹ 352,000	3	6	.02	0	.....	0	.....	.....
Virginia.....	2,546,000	7	530	.22	978	.38	4	.00	.4
Washington.....	1,562,000	7	2,309	1.59	1,806	1.16	8	.01	.4
West Virginia.....	1,696,000	5	423	.27	1,069	.65	2	.00	.2
Wisconsin.....	2,918,000	5	1,245	.45	938	.32	5	.00	.5
Wyoming.....	241,000	7	60	.28	110	.46	0	.....	.....

¹ Population estimated, Jan. 1, 1920.

² Population, State census, 1925.

Syphilis—Cases reported, 1927

State	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
Alabama.....	448	531	503	498	563	573	551	502	547	545	465	507	6,323
Arizona.....	3	12	24	14	10	3	3	1	3	3	2	5	83
Arkansas.....	276	343	319	342	325	268	290	317	318	246	290	245	3,579
California.....	851	860	990	757	800	876	683	899	998	791	907	743	10,155
Colorado.....	71	24	36	104	51	53	55	25	50	55	55	44	623
Connecticut.....	99	82	151	89	91	131	88	249	212	192	154	167	1,705
Delaware.....	42	44	49	51	51	36	41	39	57	48	45	41	544
Florida.....	424	607	523	398	398	353	327	489	367	331	408	247	4,872
Georgia.....	526	492	472	521	559	467	570	650	701	849	581	532	6,920
Idaho.....	8	8	9	6	5	12	12	6	4	8	4	2	84
Illinois.....	1,027	1,266	1,235	1,075	1,172	1,087	982	1,059	1,070	1,142	1,228	1,072	13,415
Indiana.....	205	172	319	171	177	158	129	173	138	149	132	110	2,033
Iowa.....	81	63	101	77	63	67	88	28	86	122	65	88	929
Kansas.....	52	41	53	35	39	62	56	59	62	48	58	49	614
Kentucky.....	380	444	537	336	314	299	338	314	259	456	434	295	4,406
Louisiana.....	267	294	277	398	322	375	334	563	458	381	379	307	4,355
Maine.....	23	16	18	20	8	24	26	49	24	6	24	32	272
Maryland.....	147	151	119	136	135	111	92	146	112	151	127	98	1,525
Massachusetts.....	199	138	154	123	116	140	139	128	111	144	153	127	1,672
Michigan.....	1,083	1,148	1,620	1,449	1,325	1,378	1,346	1,424	1,549	1,367	1,099	924	15,712
Minnesota.....	367	365	500	339	393	390	324	287	338	302	.....	.....	3,605
Mississippi.....	1,087	1,189	1,208	1,030	1,142	1,159	1,262	1,234	1,223	1,288	1,243	1,045	14,110
Missouri.....	249	392	333	399	314	258	230	315	314	228	305	272	3,609
Montana.....	9	2	3	8	5	.....	.....	.....	.....	.....	.....	.....	27
Nebraska.....	100	50	84	52	50	81	40	54	54	53	66	84	768
Nevada.....	.....	16	24	1	18	27	29	36	7	13	14	11	11
New Hampshire.....	21	16	24	31	18	27	29	36	7	13	14	11	247
New Jersey.....	441	466	541	404	581	508	488	526	405	392	358	484	5,594
New Mexico.....	11	5	6	.....	.....	.....	.....	.....	.....	.....	.....	.....	22
New York.....	2,325	2,406	3,285	2,736	2,776	2,659	3,199	2,750	3,805	4,245	3,258	4,402	37,846
North Carolina.....	199	288	261	280	278	361	.....	.....	.....	.....	.....	.....	1,667
North Dakota.....	14	23	13	25	20	18	11	11	10	19	10	15	189
Ohio.....	530	493	680	449	424	467	461	503	448	526	459	419	7,559
Oklahoma.....	.....	.....	54	59	45	45	51	47	36	37	34	38	446
Oregon.....	50	30	56	49	64	41	52	59	49	26	30	58	573
Pennsylvania.....	299	312	316	234	237	276	193	232	248	274	208	195	2,994
Rhode Island.....	18	41	55	28	30	37	27	30	28	26	33	38	391
South Carolina.....	612	581	586	912	531	546	709	649	708	859	778	716	8,187
South Dakota.....	7	9	14	12	7	13	4	10	14	6	9	14	119
Tennessee.....	257	457	319	480	397	333	290	366	224	382	224	231	3,960
Texas.....	264	1,490	330	1,633	1,383	325	.....	.....	.....	.....	.....	.....	5,425
Vermont.....	48	42	64	50	45	47	52	39	68	52	38	50	595
Virginia.....	107	113	127	118	102	95	79	90	101	177	176	177	1,462
Washington.....	131	112	118	99	104	98	112	116	110	84	222	159	1,465
West Virginia.....	240	180	181	127	158	153	178	135	102	157	90	163	1,864
Wisconsin.....	72	63	81	78	74	78	36	29	20	38	47	42	658

¹ Estimated.² Only cases in the infectious stage are reportable by law.³ For 10 months.⁴ For 5 months.⁵ For 3 months.⁶ For 6 months.⁷ From reports of clinics and institutions.⁸ For 10 months, from clinic reports.

NOTE.—District of Columbia, Utah, and Wyoming did not report in 1927.

Syphilis—Cases reported and indicated morbidity rates, 1927

State	Estimated population, July 1, 1927	Total cases reported, 1927	Cases per 1,000 inhabitants	State	Estimated population, July 1, 1927	Total cases reported, 1927	Cases per 1,000 inhabitants
Alabama.....	2,549,000	6,323	2.48	Mississippi.....	1,791,000	14,110	7.88
Arizona.....	459,000	83	.18	Missouri.....	3,510,000	3,609	1.03
Arkansas.....	1,923,000	3,579	1.86	Nebraska.....	1,396,000	768	.55
California.....	4,433,000	10,155	2.29	Nevada.....	177,000	11	.14
Colorado.....	1,074,000	623	.58	New Hampshire.....	455,000	247	.54
Connecticut.....	1,636,000	1,705	1.04	New Jersey.....	3,749,000	5,594	1.49
Delaware.....	243,000	544	2.24	New York.....	11,423,000	37,846	3.31
Florida.....	1,363,000	4,872	3.57	North Dakota.....	264,000	189	.29
Georgia.....	3,171,000	6,920	2.18	Ohio.....	6,710,000	5,859	.87
Idaho.....	534,000	84	.16	Oregon.....	890,000	573	.64
Illinois.....	7,296,000	13,415	1.84	Pennsylvania.....	9,730,000	2,994	.31
Indiana.....	3,150,000	2,033	.65	Rhode Island.....	704,000	391	.56
Iowa.....	2,425,000	929	.38	South Carolina.....	1,845,000	8,187	4.44
Kansas.....	1,828,000	614	.34	South Dakota.....	696,000	119	.17
Kentucky.....	2,538,000	4,406	1.74	Tennessee.....	2,485,000	3,960	1.59
Louisiana.....	1,934,000	4,355	2.25	Vermont.....	1352,000	595	1.69
Maine.....	793,000	272	.34	Virginia.....	2,546,000	1,462	.57
Maryland.....	1,507,000	1,525	.95	Washington.....	1,562,000	1,465	.94
Massachusetts.....	4,242,000	1,672	.39	West Virginia.....	1,696,000	1,864	1.10
Michigan.....	4,490,000	15,712	3.50	Wisconsin.....	2,918,000	658	.23

¹ Population estimated, Jan. 1, 1920.² From reports of clinics and institutions.³ Population, State census, 1925.*Tuberculosis (all forms)—Cases reported, 1927*

State	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
Alabama.....	234	329	519	369	315	444	457	396	357	341	299	321	4,381
California.....	663	720	1,059	779	823	995	787	962	630	747	917	667	9,749
Connecticut.....	131	138	136	136	162	165	210	108	135	154	114	107	1,696
District of Columbia.....	90	116	124	116	104	126	100	98	76	92	90	90	1,222
Florida.....	128	70	149	154	122	129	56	94	36	59	59	51	1,107
Georgia.....	70	94	80	100	80	77	76	56	57	76	55	66	887
Illinois.....	1,518	1,175	1,329	1,414	1,157	1,362	1,040	1,167	1,391	974	850	1,245	14,622
Kansas.....	130	155	192	185	243	197	160	222	153	172	156	168	2,133
Maine.....	54	50	53	81	57	58	63	37	39	42	36	47	617
Maryland.....	205	204	215	344	245	303	283	291	255	192	226	231	2,994
Massachusetts.....	501	585	700	583	561	594	544	504	481	486	474	395	6,408
Michigan.....	647	342	419	554	506	532	489	447	305	523	453	426	5,643
Minnesota.....	290	304	335	281	263	429	254	267	444	333	384	306	3,890
Mississippi.....	289	297	293	311	280	282	320	312	283	282	279	263	3,517
Montana.....	52	28	21	33	36	36	48	40	47	37	31	54	463
New Jersey.....	469	430	543	443	465	449	431	402	417	406	371	370	5,196
New Mexico.....	83	128	102	80	72	118	89	99	113	112	138	87	1,221
New York.....	1,532	1,635	1,856	1,594	1,747	1,441	1,584	1,558	1,451	1,336	1,909	1,743	19,386
Ohio.....	783	668	753	675	701	701	841	694	546	551	565	653	8,131
Oregon.....	76	57	49	63	88	40	58	48	49	42	38	38	641
Pennsylvania.....	445	490	628	659	1,023	784	881	722	829	737	656	779	8,633
South Carolina.....	189	211	200	263	202	157	193	147	137	194	140	264	2,297
Washington.....	149	135	196	180	186	115	162	145	169	152	181	216	1,986
Wisconsin.....	146	145	184	201	143	172	234	119	105	162	121	135	1,867

¹ Including 26 cases for which month is not given.² Exclusive of 40 nonresidents.

Tuberculosis (all forms)—Deaths registered, 1927

State	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
Alabama.....	197	168	196	216	229	204	189	175	171	137	153	179	2,214
Arizona.....	128	129	137	146	128	125	108	70	100	109	92	117	1,389
Arkansas.....	134	120	137	142	130	137	122	131	103	88	106	96	1,446
California.....	516	471	575	609	579	485	478	436	424	420	459	508	5,960
Colorado.....	111	108	134	135	139	119	107	138	110	104	112	145	1,462
Connecticut.....	100	96	105	102	115	92	82	65	75	73	77	78	1,060
Delaware.....	20	19	23	29	13	16	18	10	22	13	15	21	219
District of Columbia.....	52	61	45	60	58	55	51	51	36	48	41	48	606
Florida.....	96	83	105	97	91	77	102	90	89	75	75	117	1,097
Idaho.....	23	32	13	10	10	20	17	19	5	16	17	17	199
Illinois.....	506	459	492	591	542	429	431	448	393	444	381	458	5,574
Indiana.....	221	197	227	228	180	206	194	174	162	158	165	185	2,297
Iowa.....	76	76	99	78	82	76	64	65	66	52	60	56	850
Kansas.....	35	46	71	68	64	54	62	55	37	50	48	55	645
Kentucky.....	236	241	285	258	206	245	228	185	184	195	192	200	2,655
Louisiana.....	157	154	197	162	187	166	147	165	142	136	134	134	1,881
Maine.....	49	43	41	49	48	42	43	29	26	40	32	32	474
Maryland.....	132	111	183	163	160	131	130	130	106	129	114	131	1,620
Massachusetts.....	268	307	300	300	275	270	282	228	224	233	222	241	3,150
Michigan.....	250	235	269	290	282	254	254	245	206	220	216	229	2,950
Minnesota.....	132	122	133	159	171	149	124	135	106	122	108	106	1,567
Missouri.....	280	221	255	264	232	241	212	223	214	214	199	218	2,773
Montana.....	34	28	35	33	37	32	30	37	25	20	25	16	352
Nebraska.....	41	39	38	33	35	36	26	22	31	39	22	29	391
New Hampshire.....	31	24	24	30	23	15	28	24	20	23	23	26	291
New Jersey.....	247	223	292	288	250	232	238	219	184	223	209	225	2,830
New York.....	844	746	938	967	911	809	732	728	682	640	691	681	9,389
North Carolina.....	191	208	212	265	218	253	211	196	215	177	172	232	2,550
North Dakota.....	29	31	18	31	29	23	27	12	12	17	11	12	282
Ohio.....	413	384	423	454	456	376	389	384	391	352	337	348	4,707
Oklahoma.....	116	111	115	120	128	91	111	122	122	112	80	121	1,349
Oregon.....	42	53	49	57	51	44	61	32	31	31	33	33	517
Pennsylvania.....	540	577	701	679	647	576	530	532	446	467	498	504	6,097
Rhode Island.....	46	41	42	55	51	45	48	27	41	35	37	38	506
South Carolina.....	106	75	141	111	147	114	129	110	104	78	87	127	1,329
South Dakota.....	14	18	49	34	39	17	24	24	88	21	8	25	361
Tennessee.....	243	278	293	355	296	295	287	252	190	228	208	306	3,231
Texas.....	309	250	325	344	310	296	277	283	246	270	247	415	3,572
Vermont.....	24	21	21	18	22	19	20	30	16	17	17	21	246
Virginia.....	274	195	248	235	222	215	193	198	183	165	199	195	2,522
Washington.....	79	77	115	105	111	76	78	73	84	75	86	91	1,050
West Virginia.....	104	119	111	111	126	118	86	83	79	86	91	106	1,220
Wisconsin.....	119	131	181	134	167	164	157	134	131	142	113	151	1,724
Wyoming.....	1	7	8	6	11	5	3	5	8	6	6	2	68

¹ Includes 20 deaths for which month is not given.

Tuberculosis (all forms)—Cases reported, deaths registered, indicated morbidity and mortality rates, and number of cases reported for each death registered, 1927

State	Estimated population, July 1, 1927	Cases, reported, 1927	Cases per 1,000 inhabitants	Deaths registered, 1927	Deaths per 1,000 inhabitants	Cases reported for each death registered
Alabama.....	2,549,000	4,381	1.72	2,214	0.87	2.0
Arizona.....	459,000	—	—	1,389	3.03	—
Arkansas.....	1,923,000	—	—	1,446	.75	—
California.....	4,433,000	9,749	2.20	5,960	1.34	1.6
Colorado.....	1,074,000	—	—	1,462	1.36	—
Connecticut.....	1,636,000	1,696	1.04	1,060	.65	1.6
Delaware.....	243,000	—	—	219	.90	—
District of Columbia.....	540,000	1,222	2.26	606	1.12	2.0
Florida.....	1,363,000	1,107	.81	1,097	.80	1.0
Georgia.....	3,171,000	887	.28	—	—	—
Idaho.....	534,000	—	—	199	.37	—
Illinois.....	7,296,000	14,622	2.00	5,574	.76	2.6
Indiana.....	3,150,000	—	—	2,297	.73	—
Iowa.....	2,425,000	—	—	850	.35	—
Kansas.....	1,828,000	2,133	1.17	645	.35	3.3
Kentucky.....	2,538,000	—	—	2,655	1.05	—
Louisiana.....	1,934,000	—	—	1,881	.97	—
Maine.....	793,000	617	.78	474	.60	1.3
Maryland.....	1,597,000	2,994	1.87	1,620	1.01	1.8
Massachusetts.....	4,242,000	6,408	1.51	3,150	.74	2.0
Michigan.....	4,490,000	5,643	1.26	2,950	.66	1.9
Minnesota.....	2,686,000	3,890	1.45	1,567	.58	2.5
Mississippi.....	1,791,000	3,517	1.96	1,772	.99	2.0
Missouri.....	3,510,000	—	—	2,773	.79	—
Montana.....	714,000	463	.65	352	.49	1.3
Nebraska.....	1,396,000	—	—	391	.28	—
New Hampshire.....	455,000	—	—	291	.64	—
New Jersey.....	3,749,000	5,196	1.39	2,830	.75	1.8
New Mexico.....	392,000	1,221	3.11	—	—	—
New York.....	11,423,000	19,386	1.70	9,389	.82	2.1
North Carolina.....	2,897,000	—	—	2,550	.88	—
North Dakota.....	564,000	—	—	252	.39	—
Ohio.....	6,710,000	8,131	1.21	4,707	.70	1.7
Oklahoma.....	2,384,000	—	—	1,349	.57	—
Oregon.....	890,000	564	.72	517	.58	1.2
Pennsylvania.....	9,730,000	8,633	.89	6,697	.69	1.3
Rhode Island.....	704,000	—	—	506	.72	—
South Carolina.....	1,845,000	2,297	1.24	1,329	.72	1.7
South Dakota.....	696,000	—	—	361	.52	—
Tennessee.....	2,485,000	—	—	3,231	1.30	—
Texas.....	5,397,000	—	—	3,572	.66	—
Vermont.....	1352,000	—	—	246	.70	—
Virginia.....	2,546,000	—	—	2,522	.99	—
Washington.....	1,562,000	1,986	1.27	1,050	.67	1.9
West Virginia.....	1,696,000	—	—	1,220	.72	—
Wisconsin.....	2,918,000	1,867	.64	1,724	.59	1.1
Wyoming.....	241,000	—	—	68	.28	—

¹ Population estimated, Jan. 1, 1920. ² Population, State census, 1925. ³ Exclusive of 40 nonresidents.

Tuberculosis (respiratory system)—Cases reported, 1927

State	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
California.....	635	684	1,007	731	759	930	715	914	593	715	882	631	9,196
Connecticut.....	114	116	122	119	140	150	196	96	116	146	100	96	1,511
Delaware.....	17	17	26	26	12	13	18	9	15	12	14	19	198
District of Columbia.....	87	107	117	110	100	121	94	95	74	91	85	85	1,166
Georgia.....	70	90	78	97	80	77	75	56	53	76	49	66	867
Illinois.....	1,504	1,143	1,312	1,374	1,139	1,308	1,019	1,146	1,358	951	815	1,173	14,242
Kansas.....	172	139	165	151	222	178	133	194	141	142	141	148	1,866
Louisiana.....	151	141	178	184	250	241	219	182	222	195	222	189	2,374
Maine.....	49	46	49	80	53	54	58	34	38	40	34	43	578
Maryland.....	199	198	209	325	236	290	265	280	240	182	211	214	2,849
Massachusetts.....	404	460	490	446	460	457	439	410	384	390	383	326	5,049
New York.....	1,439	1,511	1,757	1,492	1,654	1,359	1,500	1,479	1,337	1,269	1,844	1,635	18,276

Tuberculosis (respiratory system)—Deaths registered, 1927

State	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
Alabama.....	186	155	167	197	203	189	167	157	149	125	140	166	2,001
Arizona.....	121	123	122	135	113	118	98	63	93	102	81	106	1,275
Arkansas.....	127	113	125	130	121	125	113	126	100	77	99	88	1,344
California.....	472	415	516	534	513	426	426	384	372	368	423	451	5,300
Colorado.....	105	101	127	130	129	111	103	131	103	99	106	134	1,379
Connecticut.....	91	86	94	88	98	80	69	53	65	63	69	70	926
Delaware.....	16	17	21	26	12	13	18	9	15	12	14	19	192
District of Columbia.....	41	49	37	50	55	47	42	46	30	42	32	44	515
Florida.....	91	73	96	87	83	69	99	81	84	66	70	109	1,008
Idaho.....	22	30	12	9	8	15	12	15	4	14	13	14	168
Illinois.....	442	402	442	445	470	366	384	398	335	396	340	414	4,834
Indiana.....	191	164	194	195	151	169	174	153	142	129	143	158	1,963
Iowa.....	69	70	82	67	66	67	54	56	56	43	50	45	725
Kansas.....	30	42	57	60	54	48	55	48	30	43	41	47	555
Kentucky.....	204	219	255	240	179	214	201	160	164	175	181	186	2,378
Louisiana.....	144	140	191	147	169	154	132	151	131	124	125	119	1,727
Maine.....	44	41	38	49	46	38	38	27	25	39	32	29	446
Maryland.....	124	100	164	148	139	118	115	116	95	119	104	111	1,453
Massachusetts.....	227	273	269	257	237	231	252	192	189	204	200	198	2,729
Michigan.....	213	205	225	241	237	207	215	207	179	194	190	199	2,512
Minnesota.....	119	100	117	136	142	125	100	114	94	103	102	93	1,345
Missouri.....	254	204	236	246	209	208	191	195	194	186	174	199	2,466
Montana.....	30	26	28	24	32	26	27	33	21	19	20	13	299
Nebraska.....	36	32	26	28	32	29	21	14	26	34	19	24	321
New Hampshire.....	26	19	21	22	17	13	21	17	17	19	18	20	230
New Jersey.....	224	203	256	259	218	194	216	192	164	209	193	206	2,534
New York.....	727	646	835	833	801	709	634	621	604	550	605	599	8,190
North Carolina.....	173	190	185	239	196	230	193	179	192	159	159	210	2,305
North Dakota.....	19	22	13	21	23	18	21	10	11	15	8	10	191
Ohio.....	361	338	376	382	399	332	332	315	343	319	290	308	4,095
Oregon.....	35	47	43	49	43	36	49	27	28	23	26	27	433
Pennsylvania.....	475	502	609	595	552	493	469	464	383	417	455	457	5,871
Rhode Island.....	35	36	36	47	43	43	37	23	33	35	31	36	435
South Carolina.....	95	64	131	98	126	106	116	100	95	65	81	116	1,193
South Dakota.....	12	16	46	30	36	16	23	21	85	19	7	22	333
Tennessee.....	215	244	267	316	266	272	256	234	166	197	186	263	2,882
Texas.....	288	233	300	325	285	266	259	257	233	253	231	392	3,322
Vermont.....	20	19	19	18	17	14	18	27	13	15	12	14	206
Virginia.....	254	178	222	210	199	189	164	178	165	145	185	173	2,262
West Virginia.....	92	109	95	94	115	97	79	75	72	66	80	91	1,065
Wisconsin.....	98	120	162	116	146	140	132	115	113	124	103	129	1,498
Wyoming.....	1	7	8	5	10	2	2	3	4	6	4	2	54

¹ Includes 17 deaths for which month is not given.

Tuberculosis (respiratory system)—Cases reported, deaths registered, indicated morbidity and mortality rates, and number of cases reported for each death registered, 1927

State	Estimated population, July 1, 1927	Cases reported, 1927	Cases per 1,000 inhabitants	Deaths registered, 1927	Deaths per 1,000 inhabitants	Cases reported for each death registered
Alabama.....	2,549,000	-----	-----	2,001	0.79	-----
Arizona.....	459,000	-----	-----	1,275	2.78	-----
Arkansas.....	1,923,000	-----	-----	1,344	.70	-----
California.....	4,433,000	9,196	2.07	5,300	1.20	1.7
Colorado.....	1,074,000	-----	-----	1,379	1.28	-----
Connecticut.....	1,636,000	1,511	.92	926	.57	1.6
Delaware.....	243,000	198	.81	192	.79	1.0
District of Columbia.....	540,000	1,166	2.16	515	.95	2.3
Florida.....	1,363,000	-----	-----	1,008	.74	-----
Georgia.....	3,171,000	867	.27	-----	-----	-----
Idaho.....	534,000	-----	-----	168	.31	-----
Illinois.....	7,296,000	14,242	1.95	4,834	.66	2.9
Indiana.....	3,150,000	-----	-----	1,963	.62	-----
Iowa.....	2,425,000	-----	-----	725	.30	-----
Kansas.....	1,828,000	1,866	1.02	555	.30	3.4
Kentucky.....	2,538,000	-----	-----	2,378	.94	-----
Louisiana.....	1,934,000	2,374	1.23	1,727	.89	1.4
Maine.....	793,000	578	.73	446	.56	1.3
Maryland.....	1,597,000	2,849	1.78	1,453	.91	2.0
Massachusetts.....	4,242,000	5,049	1.19	2,729	.64	1.9
Michigan.....	4,490,000	-----	-----	2,512	.56	-----
Minnesota.....	2,686,000	-----	-----	1,345	.50	-----
Mississippi.....	¹ 1,791,000	-----	-----	1,640	.92	-----
Missouri.....	3,510,000	-----	-----	2,496	.71	-----
Montana.....	714,000	-----	-----	299	.42	-----
Nebraska.....	1,396,000	-----	-----	321	.23	-----
Nevada.....	¹ 77,000	97	1.26	76	.99	1.3
New Hampshire.....	455,000	-----	-----	230	.51	-----
New Jersey.....	3,749,000	-----	-----	2,534	.68	-----
New York.....	11,423,000	18,276	1.60	8,190	.72	2.2
North Carolina.....	2,897,000	-----	-----	2,305	.80	-----
North Dakota.....	¹ 641,000	-----	-----	191	.30	-----
Ohio.....	6,710,000	-----	-----	4,095	.61	-----
Oregon.....	890,000	-----	-----	433	.49	-----
Pennsylvania.....	9,730,000	-----	-----	5,871	.60	-----
Rhode Island.....	704,000	-----	-----	435	.62	-----
South Carolina.....	1,845,000	-----	-----	1,193	.65	-----
South Dakota.....	696,000	-----	-----	333	.48	-----
Tennessee.....	2,485,000	-----	-----	2,882	1.16	-----
Texas.....	5,397,000	-----	-----	3,322	.62	-----
Vermont.....	¹ 352,000	-----	-----	206	.59	-----
Virginia.....	2,546,000	-----	-----	2,262	.89	-----
West Virginia.....	1,696,000	-----	-----	1,065	.63	-----
Wisconsin.....	2,918,000	-----	-----	1,498	.51	-----
Wyoming.....	241,000	-----	-----	54	.22	-----

¹ Population estimated, Jan. 1, 1920.

² Population, State census, 1925.

Tularaemia—Cases reported, 1927¹

State	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
Alabama.....	2						1					1	4
Arkansas.....	2	1	4		3	2	1					1	14
California.....											1	1	2
Colorado.....							1				1		2
District of Columbia.....		1		1							1	6	9
Florida.....			2	1									3
Georgia.....		1				1				1			3
Idaho.....						1	1	2					4
Illinois.....	4	1										5	10
Indiana.....	3					2				1	1	2	9
Iowa.....	1												1
Kansas.....												1	1
Kentucky.....	3		1									12	16
Louisiana.....	1	1	1		1		1	1			1		7
Maryland.....												1	1
Michigan.....	2											1	3
Minnesota.....		1						4	2	1	1		9
Mississippi.....	1	4	4	4		1							14
Missouri.....					1							3	4
Montana.....			2			1	2	1					6
Nebraska.....	1				1	1	1				1	3	8
Nevada.....													15
New Jersey.....											2		2
New Mexico.....												1	1
New York.....							1					1	1
North Dakota.....					3	1	1						5
Ohio.....	3	2	1		1			2				12	21
Oklahoma.....				2				1					3
South Carolina.....			2									1	3
South Dakota.....							1						1
Tennessee.....		1	4	1			4					7	17
Texas.....	2		2				1	1			1	1	8
Virginia.....	1		3				1					3	8
Wyoming.....	3				3	1	3	2	1				13

¹ The reports of tularaemia received from State health officers have been supplemented by other data received by the Public Health Service.

² Not reported by months.

³ Unofficial.

Tularaemia—Deaths registered, 1927¹

State	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
Arkansas.....				1	1	1							3
District of Columbia.....												1	1
Illinois.....												1	1
Minnesota.....								2					2
Ohio.....											1		1
Tennessee.....	1											1	2
Virginia.....												3	3

¹ The reports of tularaemia received from State health officers have been supplemented by other data received by the Public Health Service.

Typhoid fever—Monthly estimated expectancy based on data which are available for years 1920-1926, inclusive

State	Number of years included	January	February	March	April	May	June	July	August	September	October	November	December	Total
Alabama.....	7	48	48	51	36	74	148	351	479	265	165	80	78	1,823
Arizona.....	7	3	2	1	2	8	11	9	13	10	15	6	7	87
Arkansas.....	7	37	20	12	17	23	46	161	165	148	123	78	41	871
California.....	7	52	29	44	41	66	98	125	148	118	112	75	66	974
Colorado.....	7	12	6	10	8	10	21	30	71	93	66	48	22	397
Connecticut.....	7	9	7	11	10	15	14	24	51	38	42	18	29	268
Delaware.....	7	4	2	1	1	2	5	6	17	17	21	10	5	91
District of Columbia.....	7	6	4	6	4	6	8	12	19	24	16	9	10	124
Florida.....	7	59	42	41	52	62	66	61	59	40	39	31	40	592
Georgia.....	7	28	22	16	20	61	132	254	254	190	159	56	34	1,226
Idaho.....	7	2	3	5	3	6	5	8	18	23	15	10	4	102
Illinois.....	7	111	72	71	58	69	116	166	233	290	273	185	115	1,759
Indiana.....	7	28	20	21	25	33	35	61	85	139	138	77	62	724
Kansas.....	7	17	11	10	16	26	48	134	179	150	84	50	19	744
Kentucky.....	3	59	30	31	24	29	46	59	224	153	139	101	53	948
Louisiana.....	7	73	53	40	52	70	112	135	154	131	94	78	81	1,073
Maine.....	7	12	12	11	12	13	15	23	35	41	45	26	17	262
Maryland.....	7	41	24	27	28	32	54	109	254	230	199	121	73	1,192
Massachusetts.....	7	38	31	33	41	44	40	62	73	97	86	47	40	632
Michigan.....	7	54	31	53	53	53	49	69	106	160	168	117	76	989
Minnesota.....	7	27	22	25	24	26	28	36	51	62	69	38	26	434
Mississippi.....	7	100	80	72	113	140	299	448	438	307	288	151	89	2,525
Missouri.....	5	22	13	23	21	23	42	138	151	162	107	73	33	808
Montana.....	7	8	4	5	5	11	13	19	23	34	19	12	10	163
Nebraska.....	7	7	5	3	3	4	3	9	12	13	10	11	10	90
Nevada.....	5	1	1	1	1	2	1	1	6	5	4	2	1	26
New Hampshire.....	7	2	1	2	2	2	1	2	4	3	7	2	2	30
New Jersey.....	7	32	22	27	28	25	39	61	101	124	108	79	50	696
New Mexico.....	7	14	7	4	7	8	17	28	41	75	93	48	26	368
New York.....	7	168	79	94	112	121	127	202	391	425	350	224	175	2,468
North Carolina.....	7	22	9	16	26	54	152	392	377	302	136	61	44	1,591
North Dakota.....	7	7	2	3	4	3	1	7	8	18	27	9	7	96
Ohio.....	7	91	49	59	56	80	91	191	332	436	330	165	88	1,968
Oklahoma.....	6	30	14	18	21	28	71	143	149	127	208	111	48	968
Oregon.....	7	10	7	7	6	9	13	17	25	34	34	15	15	192
Pennsylvania.....	7	109	103	88	91	112	144	198	330	448	460	230	165	2,478
Rhode Island.....	7	3	1	2	3	3	2	5	9	17	9	8	8	70
South Carolina.....	6	7	6	11	15	28	107	120	86	55	34	14	12	495
South Dakota.....	7	8	7	5	2	3	6	10	16	11	18	9	6	101
Tennessee.....	6	31	26	15	24	46	111	322	359	249	218	92	69	1,562
Texas.....	7	24	29	13	19	31	60	99	112	112	71	70	66	706
Vermont.....	7	6	3	5	3	1	3	4	6	9	7	5	6	58
Virginia.....	7	54	28	37	57	78	172	388	369	291	217	125	71	1,887
Washington.....	7	24	15	20	21	18	26	39	68	82	68	45	25	451
West Virginia.....	7	66	48	40	40	42	48	135	164	212	285	93	64	1,237
Wisconsin.....	7	19	16	19	23	27	17	19	28	39	46	40	20	313
Wyoming.....	7	1	4	6	2	3	3	7	9	8	12	7	3	65

Typhoid fever—Cases reported, 1927

State	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
Alabama.....	51	67	74	93	101	209	414	352	273	178	100	73	1,985
Arizona.....	1	5	9	3	8	17	10	18	30	21	10	10	142
Arkansas.....	41	23	45	25	74	131	111	192	230	127	82	25	1,106
California.....	52	23	69	47	47	59	80	92	79	51	46	40	685
Connecticut.....	11	4	2	2	2	5	9	13	22	18	18	6	112
Delaware.....	1	1	2	1	3	3	3	16	9	8	4	5	56
District of Columbia.....		3	6		3	5	11	18	11	10	9	2	78
Florida.....	52	31	54	76	66	86	59	63	29	40	17	14	587
Georgia.....	33	27	16	34	106	231	405	328	264	137	78	64	1,723
Idaho.....	7	20	3	3	11	10	6	4	13	9	2	5	93
Illinois.....	52	59	39	40	52	70	141	223	251	161	121	69	1,278
Indiana.....	12	13	10	16	8	18	41	70	116	103	27	24	458
Iowa.....	17	19	25	24	20	20	14	29	15	14	12	12	221
Kansas.....	13	7	8	8	13	38	80	108	118	73	25	20	511
Kentucky.....	13	12	9	23	20	21	119	151	123	83	81	83	738
Louisiana.....	49	39	53	78	84	125	159	179	116	78	67	39	1,066
Maine.....	8	12	23	15	8	11	7	32	35	30	19	29	227
Maryland.....	42	40	33	44	28	43	76	209	118	116	72	53	874
Massachusetts.....	36	25	44	26	27	17	30	67	82	48	39	25	466
Michigan.....	26	31	39	29	24	29	50	87	68	77	62	57	579
Minnesota.....	21	17	27	8	13	19	17	32	28	32	24	20	258
Mississippi.....	60	52	70	60	140	237	321	280	136	102	68	64	1,597
Missouri.....	18	27	9	16	57	38	84	104	138	137	86	41	755
Montana.....	3	1	5	9	10	6	17	22	21	7	4	3	108
Nebraska.....	6	8	4	6	4	5	11	22	18	12	15	8	119
New Hampshire.....	1		2	2	1	1	1	1	3	4	1		17
New Jersey.....	14	20	15	27	13	22	45	54	73	39	45	17	384
New Mexico.....	11	10	3	1	9	9	24	44	68	109	43	25	356
New York.....	126	82	94	71	72	90	107	195	302	216	204	100	1,659
North Carolina.....	24	21	21	11	57	151	331	313	187	88	64	12	1,280
North Dakota.....	1	5	4	7	2	2	1	2	7	10	6	2	49
Ohio.....	44	23	35	45	48	50	84	168	206	157	109	117	1,086
Oklahoma.....	43	49	66	99	89	153	372	410	385	398	146	116	2,326
Oregon.....	29	22	10	13	26	24	26	23	26	69	32	20	320
Pennsylvania.....	92	87	70	87	77	78	157	214	226	146	132	108	1,474
Rhode Island.....	5	1		3	1		4	19	11	6	5	2	57
South Carolina.....	53	31	18	33	132	378	542	427	356	233	128	83	2,414
South Dakota.....	9	7	4	1	2	10	2	7	18	18	13	7	98
Tennessee.....	132	43	62	60	89	247	950	633	425	362	138	90	3,231
Texas.....	29	11	16	32	34	86	60	87	100	102	53	45	655
Vermont.....	2	8	2	1		1	3	2	4	9		1	23
Virginia.....	48	24	39	42	54	116	289	319	208	130	96	38	1,403
Washington.....	30	8	20	17	14	20	25	35	43	24	27	25	288
West Virginia.....	62	72	24	22	32	46	89	167	175	205	62	127	1,057
Wisconsin.....	23	12	15	4	13	14	15	40	54	30	15	9	254
Wyoming.....		1		1			1	3	6	9	3	7	51

¹ Includes 7 cases for which month is not given.

Typhoid fever—Deaths registered, 1927

State	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
Alabama.....	7	12	9	13	19	47	52	45	40	37	21	16	318
Arizona.....	3	2	4	2	2	4	6	5	4	7	2	1	42
Arkansas.....	28	12	23	22	39	35	60	70	63	50	26	17	445
California.....	11	6	10	9	10	15	6	10	9	7	8	7	108
Colorado.....	6	2	1	4	2	7	5	6	16	12	7	8	76
Connecticut.....	2	1	2			1	1		4	5		1	17
Delaware.....	1	1	2			2	2		2	2			10
District of Columbia.....	1	1				1	1		3		2		10
Florida.....	15	5	15	13	13	17	16	20	11	6	7		142
Idaho.....	1		1	3	1	2	1		1		2		15
Illinois.....	9	6	6	6	8	9	18	27	33	23	20	10	175
Indiana.....	13	8	7	4	5	6	11	17	24	16	16	10	157
Iowa.....	5		2	8	1	4	2	8	13		1	5	54
Kansas.....	4	1	1	1	5	1	10	13	8	15	4	3	66
Kentucky.....	27	21	14	17	8	19	67	63	53	55	33	23	400
Louisiana.....	19	16	19	16	21	28	35	35	37	20	21	15	282
Maine.....	2	1	3			2	2	1	3	1	3	6	24
Maryland.....	8	4	6	4	4	6	7	18	13	6	9	8	93
Massachusetts.....	4	1	1	4	3	2	7	4	6	6	5	1	44
Michigan.....	5	4	6	10	4	10	8	12	7	11	8	9	94
Minnesota.....		3	3			3	2	4	4	4		5	28
Missouri.....	15	10	5	9	9	14	28	40	41	39	28	12	250
Montana.....	1	1		3	2	1	1	4		2			15
Nebraska.....	3			3	3	3	2	3	8	9	2	3	36
New Hampshire.....	1		1							1			3
New Jersey.....	4	3	3	3	1	1	4	7	5	4	12	4	51
New York.....	26	9	11	11	11	6	13	26	27	19	19	14	192
North Carolina.....	10	9	6	6	8	26	41	41	30	21	18	17	233
North Dakota.....		2	1	1	1		1		1	4	1	1	12
Ohio.....	18	4	6	11	9	8	13	19	29	21	18	23	179
Oklahoma.....	22	17	25	22	24	22	59	68	80	85	43	37	504
Oregon.....	3	1		7	5	5	2		3	4	4	1	35
Pennsylvania.....	14	12	17	17	16	17	24	38	25	34	27	19	260
Rhode Island.....							1			2			3
South Carolina.....	7	7	6	8	33	55	56	50	66	30	30	25	373
South Dakota.....		5	1	2	2	2	1	3	3		4	3	26
Tennessee.....	29	13	14	12	26	31	88	87	89	62	36	37	524
Texas.....	20	4	15	20	24	30	43	66	76	47	27	67	439
Vermont.....	2		3			2		1	2			1	11
Virginia.....	13	5	7	7	5	21	19	31	26	20	14	7	175
Washington.....	4	1	1	3	3	1	2	1	5	4	1	6	32
West Virginia.....	23	12	14	10	12	15	18	28	20	24	25	21	222
Wisconsin.....	5		3	3	2	2	2	10	6	2		5	40
Wyoming.....	1						1	1	1	1	1		6

Typhoid fever—Cases reported, deaths registered, indicated morbidity, mortality, and fatality rates, 1927; estimated expectancy and indicated annual rates based on years 1920-1926

State	Estimated population, July 1, 1927	Estimated expectancy			1927				
		Number of years	Cases	Cases per 1,000 inhabitants	Cases reported	Cases per 1,000 inhabitants	Deaths registered	Deaths per 1,000 inhabitants	Fatalities per 100 cases
Alabama.....	2,549,000	7	1,823	0.75	1,985	0.78	318	0.12	16.0
Arizona.....	459,000	7	87	.22	142	.31	42	.09	29.6
Arkansas.....	1,923,000	7	871	.45	1,106	.58	445	.23	40.2
California.....	4,433,000	7	974	.25	685	.15	108	.02	15.8
Colorado.....	1,074,000	7	397	.40	319	.30	76	.07	23.8
Connecticut.....	1,636,000	7	268	.18	112	.07	17	.01	15.2
Delaware.....	243,000	7	91	.39	56	.23	10	.04	17.9
District of Columbia.....	540,000	7	124	.26	78	.14	10	.02	12.8
Florida.....	1,363,000	7	592	.61	587	.43	142	.10	24.2
Georgia.....	3,171,000	7	1,226	.41	1,723	.54			
Idaho.....	534,000	7	102	.21	93	.17	15	.03	16.1
Illinois.....	7,296,000	7	1,759	.26	1,278	.18	175	.02	13.7
Indiana.....	3,150,000	7	724	.24	458	.15	157	.05	34.3
Iowa.....	2,425,000				221	.09	54	.02	24.4
Kansas.....	1,828,000	7	744	.41	511	.28	66	.04	12.9
Kentucky.....	2,538,000	3	948	.38	738	.29	400	.16	54.2
Louisiana.....	1,934,000	7	1,073	.68	1,066	.55	282	.15	26.5
Maine.....	793,000	7	262	.34	227	.29	24	.03	10.6
Maryland.....	1,597,000	7	1,192	.79	874	.55	93	.06	10.6
Massachusetts.....	4,242,000	7	632	.16	466	.11	44	.01	9.4
Michigan.....	4,490,000	7	989	.24	579	.13	94	.02	16.2
Minnesota.....	2,686,000	7	434	.17	258	.10	28	.01	10.9
Mississippi.....	1,791,000	7	2,525	1.41	1,597	.89	255	.14	16.0
Missouri.....	3,510,000	5	808	.23	755	.22	250	.07	33.1
Montana.....	714,000	7	163	.26	108	.15	15	.02	13.9
Nebraska.....	1,396,000	7	90	.07	119	.09	36	.03	30.3
Nevada.....	177,000	5	26	.34	13	.17	4	.05	30.8
New Hampshire.....	455,000	7	30	.07	17	.04	3	.01	17.6
New Jersey.....	3,749,000	7	696	.20	384	.10	51	.01	13.3
New Mexico.....	392,000	7	368	.98	356	.91			
New York.....	11,423,000	7	2,468	.23	1,659	.15	192	.02	11.6
North Carolina.....	2,897,000	7	1,591	.59	1,280	.44	233	.08	18.2
North Dakota.....	641,000	7	96	.15	49	.08	12	.02	24.5
Ohio.....	6,710,000	7	1,968	.32	1,086	.16	179	.03	16.5
Oklahoma.....	2,384,000	6	968	.44	2,326	.98	504	.21	21.7
Oregon.....	890,000	7	192	.23	320	.36	35	.04	10.9
Pennsylvania.....	9,730,000	7	2,478	.27	1,474	.15	260	.03	17.6
Rhode Island.....	704,000	7	70	.11	67	.08	3	.00	5.3
South Carolina.....	1,845,000	6	495	.28	2,414	1.31	373	.20	15.5
South Dakota.....	696,000	7	101	.15	98	.14	26	.04	26.5
Tennessee.....	2,485,000	6	1,562	.65	3,231	1.30	524	.21	16.2
Texas.....	5,397,000	7	706	.14	655	.12	439	.08	67.0
Vermont.....	1352,000	7	58	.16	33	.09	11	.03	33.3
Virginia.....	2,546,000	7	1,887	.78	1,403	.55	175	.07	12.5
Washington.....	1,562,000	7	451	.31	288	.18	32	.02	11.1
West Virginia.....	1,696,000	7	1,237	.79	1,073	.63	222	.13	20.7
Wisconsin.....	2,918,000	7	313	.11	244	.08	40	.01	16.4
Wyoming.....	241,000	7	65	.30	31	.13	6	.02	19.4

¹ Population estimated, Jan. 1, 1920.

² Population, State census, 1925.

Typhus fever—Cases reported, 1927

State	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
Alabama.....	6	1	2	1	1	5	9	7	14	7	8	8	69
Connecticut.....					1	1							2
Florida.....		1	2		1	2	5	19	4	8	1	2	45
Georgia.....	2	6		13		3	3	1	7	8	1	13	57
New Jersey.....								1					1
New York.....	1	1			2	2					1		7
Oklahoma.....							1						1
South Carolina.....						2				1			3
Texas.....		1		1		6	2	1	3				14

Typhus fever—Deaths registered, 1927

State	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
Alabama.....					1		1		2				4
New York.....		1			1								2
North Carolina.....								1					1
Texas.....											1		1

Undulant fever—Cases reported, 1927¹

State	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
Arizona.....			1	1		1	2						5
California.....	3	3				2	1	2	1	1		1	14
District of Columbia.....	1											1	2
Illinois.....												5	5
Indiana.....	1												1
Iowa ²						1	5	1	7				14
Kansas.....	1			1					1				3
Maryland.....				1	1					1			2
Michigan.....			3		1	5	2	4			2	9	26
Minnesota.....			2	1		1	2	1		1			8
New Jersey.....	1					1							2
New Mexico.....							1			1			2
New York.....	2	1		3	1	1		1	6	2	1	1	21
Ohio.....								1					1
Pennsylvania.....						2							2
South Dakota.....										1			1
Virginia.....					2								2
Wisconsin.....										1			1

¹ The reports of cases of undulant fever received from State health officers have been supplemented by other data received by the Public Health Service.

² See table on page 504 of Public Health Reports, Mar. 2, 1928.

³ Includes 2 cases for which month is not given.

Undulant fever—Deaths registered, 1927

State	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
New York.....										1			1
South Dakota.....									1				1

Whooping cough—Monthly estimated expectancy based on data which are available for the years 1922-1926, inclusive

State	Number of years included	January	February	March	April	May	June	July	August	September	October	November	December	Total
Alabama.....	5	113	122	110	133	251	195	216	127	69	96	64	95	1,591
Arizona.....	4	6	8	12	27	8	13	12	9	4	6	7	8	120
Arkansas.....	5	56	55	104	73	133	141	117	114	70	70	40	59	1,032
California.....	5	364	359	376	307	499	424	327	263	189	225	257	289	3,879
Colorado.....	5	81	71	78	101	181	162	146	118	63	32	35	58	1,126
Connecticut.....	5	313	197	253	266	216	165	212	149	170	161	235	222	2,559
Delaware.....	5	12	9	7	9	6	7	10	4	5	4	12	16	101
District of Columbia.....	5	51	44	64	72	72	60	76	46	34	45	36	59	659
Florida.....	5	20	22	51	49	77	47	32	33	26	11	24	15	407
Georgia.....	5	21	84	151	90	149	83	93	44	39	45	34	28	861
Idaho.....	5	6	9	23	32	37	11	19	23	6	14	6	2	188
Illinois.....	5	739	804	939	870	827	802	953	767	662	563	621	786	9,423
Indiana.....	3	309	396	394	274	326	178	268	258	117	188	240	215	3,163
Iowa.....	4	54	39	46	45	44	46	37	13	12	34	37	45	452
Kansas.....	5	187	289	505	375	283	440	333	167	160	144	239	147	3,269
Kentucky.....	3	77	70	69	59	49	44	66	40	43	34	51	57	659
Louisiana.....	5	29	31	49	53	61	60	55	34	25	17	29	33	476
Maine.....	5	123	141	148	108	108	63	66	59	64	167	159	177	1,381
Maryland.....	5	268	195	278	256	290	284	392	273	199	197	271	279	3,182
Massachusetts.....	5	547	602	700	622	664	522	472	430	379	335	442	604	6,319
Michigan.....	5	505	440	373	637	651	588	732	623	453	353	457	512	6,324
Minnesota.....	5	86	123	135	179	184	151	127	120	95	109	109	107	1,525
Mississippi.....	5	702	1,065	1,207	1,262	1,300	1,225	840	593	572	526	634	669	10,595
Missouri.....	5	97	121	251	232	165	200	219	179	137	145	71	101	1,918
Montana.....	5	40	49	31	22	32	21	38	24	25	23	25	26	356
Nebraska.....	5	36	72	41	27	65	52	51	28	47	24	27	13	483
Nevada.....	4	9	7	4	5	4	1	1	2	4	1	1	3	42
New Hampshire.....	5	23	10	16	19	8	10	7	1	6	6	9	12	127
New Jersey.....	5	526	390	483	492	548	519	573	432	420	428	550	629	5,990
New Mexico.....	5	15	26	27	34	32	14	7	13	36	18	15	9	246
New York.....	5	1,730	1,573	1,705	1,723	1,516	1,330	1,382	1,240	1,147	1,064	1,349	1,435	17,194
North Carolina.....	5	533	687	661	828	1,243	1,071	1,010	688	470	446	434	454	8,525
North Dakota.....	5	33	49	41	63	53	50	32	36	59	85	37	19	557
Ohio.....	5	854	817	897	848	1,140	1,049	1,125	805	515	469	502	598	9,619
Oklahoma.....	4	77	135	94	110	126	156	58	49	29	49	51	72	1,006
Oregon.....	5	25	18	41	50	106	45	32	15	17	23	13	16	401
Pennsylvania.....	5	1,325	1,321	1,629	1,263	1,195	1,193	1,309	1,208	1,065	890	973	1,074	14,505
Rhode Island.....	5	25	25	27	23	39	26	25	11	21	18	18	26	284
South Carolina.....	4	40	70	75	119	87	86	32	45	30	33	63	53	733
South Dakota.....	5	16	21	25	17	22	18	17	15	30	28	26	44	279
Tennessee.....	5	158	193	103	171	171	191	132	93	150	115	106	196	1,779
Texas.....	5	78	164	201	127	183	204	191	129	131	56	55	104	1,623
Vermont.....	5	248	151	100	119	77	116	92	95	99	132	219	242	1,691
Virginia.....	3	967	936	1,113	772	971	900	689	701	405	699	698	763	9,634
Washington.....	5	151	159	217	302	259	155	172	135	59	78	77	47	1,811
West Virginia.....	5	192	189	176	113	146	180	250	172	84	70	88	155	1,815
Wisconsin.....	5	599	435	506	533	551	467	662	690	604	422	507	642	6,618
Wyoming.....	5	13	24	17	8	31	7	12	13	14	19	6	15	179

Whooping cough—Cases reported, 1927

State	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
Alabama.....	172	206	231	308	221	225	206	114	84	119	77	67	2,030
Arizona.....	7	22	6	11	14	9	2	1	9	3	29	6	119
Arkansas.....	156	198	277	254	222	222	137	104	34	47	62	26	1,739
California.....	381	459	930	761	1,071	914	601	678	436	396	504	369	7,500
Connecticut.....	238	179	220	120	163	98	113	191	180	157	332	470	2,461
Delaware.....	20	19	16	1	9	2	6	3	10	6	11	5	108
District of Columbia.....	43	72	71	47	48	39	48	20	16	23	20	29	476
Florida.....	32	55	74	129	125	140	41	15	20	14	5	4	654
Georgia.....	180	145	250	271	103	142	116	52	34	36	18	27	1,464
Idaho.....	21	39	39	26	57	26	17	56	14	12	9	1	317
Illinois.....	779	896	1,015	850	906	1,089	1,224	1,218	904	694	731	820	11,126
Indiana.....	261	247	225	272	195	221	247	121	86	64	86	77	2,102
Iowa.....	48	52	99	70	73	96	64	29	34	25	90	32	712
Kansas.....	258	231	218	208	227	436	384	291	302	247	301	213	3,316
Kentucky.....	241	500	377	337	194	155	125	80	104	39	36	50	2,238
Louisiana.....	26	93	69	101	133	121	47	32	23	6	46	41	748
Maine.....	289	195	183	131	132	137	150	50	71	86	50	110	1,584
Maryland.....	472	423	437	375	311	350	282	220	178	106	119	111	3,384
Massachusetts.....	641	543	760	625	474	406	360	365	397	341	606	755	6,273
Michigan.....	564	532	611	539	759	613	675	673	563	442	408	446	6,825
Minnesota.....	115	113	126	99	105	78	82	61	100	85	40	27	1,031
Mississippi.....	1,361	1,595	1,874	2,068	2,054	1,737	1,122	870	780	997	1,030	1,170	16,742
Missouri.....	168	190	224	280	284	330	348	183	129	251	159	138	2,684
Montana.....	11	6	8	26	26	54	59	20	17	30	28	11	296
Nebraska.....	46	123	81	64	44	35	62	38	10	32	59	22	616
New Hampshire.....	97	44	58	23	20	17	23	1	10	7	13	13	326
New Jersey.....	826	997	1,055	821	671	683	592	557	461	377	632	672	8,344
New Mexico.....	54	20	37	51	37	15	16	9	21	3	7	6	276
New York.....	1,411	1,618	1,583	1,112	1,177	1,379	1,343	1,211	1,033	1,061	1,511	1,792	16,231
North Carolina.....	1,814	2,612	3,526	3,087	2,490	2,204	1,432	915	508	566	445	364	19,966
North Dakota.....	16	12	22	10	12	15	15	31	10	6	10	24	183
Ohio.....	914	1,039	871	679	736	576	643	529	359	375	353	404	7,478
Oklahoma.....	48	64	68	141	88	68	75	34	80	73	23	27	789
Oregon.....	26	58	39	67	72	74	58	48	25	23	17	23	530
Pennsylvania.....	1,399	1,231	1,178	944	813	652	1,033	730	683	551	711	873	10,798
Rhode Island.....	49	41	68	31	8	22	15	21	14	5	12	7	293
South Carolina.....	313	431	489	944	661	661	530	267	235	248	301	399	5,479
South Dakota.....	61	38	54	42	35	21	52	58	49	7	20	16	453
Tennessee.....	436	385	392	357	316	282	246	69	76	193	59	65	2,876
Texas.....	66	69	171	250	177	80	149	83	73	54	31	74	1,277
Vermont.....	235	193	111	111	86	143	88	66	80	134	175	97	1,519
Virginia.....	1,714	2,095	2,288	2,052	1,746	1,370	1,015	602	347	295	376	451	14,351
Washington.....	84	73	194	188	169	146	107	126	52	50	38	36	1,263
West Virginia.....	387	477	457	309	216	150	151	79	91	188	32	81	2,618
Wisconsin.....	809	586	539	639	516	393	508	450	510	315	254	393	5,912
Wyoming.....	22	2	1	9	12	27	34	21	7	47	74	28	284

¹ Includes 84 cases for which month is not given.

Whooping cough—Deaths registered, 1927

State	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
Alabama.....	30	20	23	39	62	44	40	32	25	11	12	9	347
Arizona.....	1	1	2	5	5	2	2	4	2	3	3	5	26
Arkansas.....	13	10	23	18	18	17	19	20	13	11	9	5	176
California.....	13	8	10	23	23	17	24	15	17	22	11	12	195
Colorado.....	4	2	3	8	7	6	8	3	9	5	2	2	59
Connecticut.....	8	8	4	2	3	2	2	2	1	5	2	3	40
Delaware.....	1	3	2	1	3	2	1	2	2	1	1	1	11
District of Columbia.....	3	3	1	1	3	2	1	2	2	1	2	1	17
Florida.....	2	3	6	8	16	7	8	1	1	3	7	5	67
Idaho.....	3	3	1	2	1	6	1	1	1	1	1	1	17
Illinois.....	17	29	34	22	27	23	39	32	32	16	14	21	306
Indiana.....	17	21	25	21	14	11	15	16	16	9	10	10	185
Iowa.....	8	6	12	13	8	10	15	14	8	2	4	6	106
Kansas.....	8	2	6	3	9	1	14	5	4	1	3	5	61
Kentucky.....	20	33	42	45	30	34	29	25	10	20	21	10	319
Louisiana.....	13	11	13	26	24	24	19	21	15	12	18	15	211
Maine.....	12	9	6	7	6	9	3	2	3	7	2	10	76
Maryland.....	23	13	26	26	15	11	11	20	10	8	12	7	182
Massachusetts.....	10	23	23	18	10	11	6	8	8	8	7	15	147
Michigan.....	19	22	10	18	22	18	16	20	26	13	11	6	201
Minnesota.....	7	9	9	7	7	7	7	10	2	3	5	2	75
Missouri.....	22	17	20	24	25	20	20	32	25	13	14	13	245
Montana.....	1	2	5	7	9	3	1	4	1	3	1	1	14
Nebraska.....	7	6	5	7	9	3	8	2	2	1	1	1	50
New Hampshire.....	5	7	2	2	2	1	2	2	2	1	1	3	27
New Jersey.....	24	18	15	14	14	9	12	24	12	11	13	10	176
New York.....	37	33	45	45	30	33	52	36	57	38	40	33	480
North Carolina.....	28	26	53	81	95	106	70	49	29	38	17	32	624
North Dakota.....	4	3	5	2	1	1	1	1	1	1	1	1	19
Ohio.....	23	27	34	31	20	35	30	20	22	12	10	6	270
Oklahoma.....	10	13	9	14	14	12	10	5	7	12	7	5	118
Oregon.....	2	2	5	5	2	4	4	3	3	2	2	2	27
Pennsylvania.....	52	51	61	43	44	32	37	33	32	17	16	19	437
Rhode Island.....	9	4	8	4	3	3	3	1	2	1	1	1	36
South Carolina.....	1	2	5	15	17	19	31	18	15	11	9	10	153
South Dakota.....	5	4	5	1	3	4	1	2	19	4	4	6	54
Tennessee.....	23	31	34	39	34	38	40	23	14	24	17	17	334
Texas.....	6	11	11	17	16	11	18	10	11	7	2	10	130
Vermont.....	6	6	3	3	3	1	6	3	2	2	3	2	40
Virginia.....	28	45	55	50	59	47	43	39	23	22	17	19	447
Washington.....	1	3	5	1	4	5	2	2	5	2	3	3	33
West Virginia.....	36	32	55	40	32	23	23	19	20	20	12	15	327
Wisconsin.....	16	7	9	6	6	5	4	4	3	4	5	4	73
Wyoming.....	1	1	1	1	1	1	1	1	2	1	1	1	6

* Includes 1 death for which month is not given.

Whooping cough—Cases reported, deaths registered, and indicated morbidity and mortality rates, 1927; estimated expectancy and indicated annual rates based on years 1922-1926

State	Estimated population, July 1, 1927	Estimated expectancy			1927				
		Number of years	Cases	Cases per 1,000 inhabitants	Cases reported	Cases per 1,000 inhabitants	Deaths registered	Deaths per 1,000 inhabitants	Cases reported for each death registered
Alabama.....	2,549,000	5	1,591	0.64	2,030	0.80	347	0.14	5.9
Arizona.....	459,000	4	120	.29	119	.26	26	.06	4.6
Arkansas.....	1,923,000	5	1,032	.56	1,739	.90	176	.09	9.9
California.....	4,433,000	5	3,879	.96	7,500	1.69	195	.04	38.5
Colorado.....	1,074,000	5	1,126	1.10	651	.61	59	.05	11.0
Connecticut.....	1,636,000	5	2,559	1.66	2,461	1.50	40	.02	61.5
Delaware.....	243,000	5	101	.43	108	.44	11	.05	9.8
District of Columbia.....	540,000	5	659	1.32	476	.88	17	.03	28.0
Florida.....	1,363,000	5	407	.33	654	.48	67	.05	9.8
Georgia.....	3,171,000	5	861	.28	1,464	.46			
Idaho.....	534,000	5	188	.38	317	.59	17	.03	18.6
Illinois.....	7,296,000	5	9,423	1.35	11,126	1.52	306	.04	36.4
Indiana.....	3,150,000	3	3,163	1.03	2,102	.67	185	.06	11.4
Iowa.....	2,425,000	4	452	.19	712	.29	106	.04	6.7
Kansas.....	1,828,000	5	3,269	1.81	3,316	1.81	61	.03	54.4
Kentucky.....	2,538,000	3	659	.26	2,238	.88	319	.13	7.0
Louisiana.....	1,934,000	5	476	.25	748	.39	211	.11	3.5
Maine.....	793,000	5	1,381	1.76	1,584	2.00	76	.10	20.8
Maryland.....	1,597,000	5	3,182	2.06	3,384	2.12	182	.11	18.6
Massachusetts.....	4,242,000	5	6,319	1.54	6,273	1.48	147	.03	42.7
Michigan.....	4,490,000	5	6,324	1.51	6,825	1.52	201	.04	34.0
Minnesota.....	2,686,000	5	1,525	.59	1,031	.38	75	.03	13.7
Mississippi.....	1,791,000	5	10,595	5.92	16,742	9.35	276	.15	60.7
Missouri.....	3,510,000	5	1,918	.55	2,684	.76	245	.07	11.0
Montana.....	714,000	5	356	.55	296	.41	14	.02	21.1
Nebraska.....	1,396,000	5	483	.36	616	.44	50	.04	12.3
Nevada.....	177,000	4	42	.55	13	.17	0		
New Hampshire.....	455,000	5	127	.28	326	.72	27	.06	12.1
New Jersey.....	3,749,000	5	5,990	1.70	8,344	2.23	176	.05	47.4
New Mexico.....	392,000	5	246	.65	276	.70			
New York.....	11,423,000	5	17,194	1.56	16,231	1.42	480	.04	33.8
North Carolina.....	2,897,000	5	8,525	3.08	19,966	6.89	624	.22	32.0
North Dakota.....	264,000	5	557	.87	182	.29	19	.03	9.6
Ohio.....	6,710,000	5	9,619	1.52	7,478	1.11	270	.04	27.7
Oklahoma.....	2,384,000	4	1,006	.45	789	.33	118	.05	6.7
Oregon.....	890,000	5	401	.47	530	.60	27	.03	19.6
Pennsylvania.....	9,730,000	5	14,505	1.55	10,798	1.11	437	.04	24.7
Rhode Island.....	704,000	5	284	.43	293	.42	36	.05	8.1
South Carolina.....	1,845,000	4	733	.41	5,479	2.97	153	.08	35.8
South Dakota.....	696,000	5	279	.41	453	.65	54	.08	8.4
Tennessee.....	2,485,000	5	1,779	.73	2,876	1.16	334	.13	8.6
Texas.....	5,397,000	5	1,623	.32	1,277	.24	130	.02	9.8
Vermont.....	1352,000	5	1,691	4.80	1,519	4.32	40	.11	38.0
Virginia.....	2,546,000	3	9,634	3.92	14,351	5.64	447	.18	32.1
Washington.....	1,562,000	5	1,811	1.22	1,263	.81	33	.02	38.3
West Virginia.....	1,696,000	5	1,815	1.13	2,618	1.54	327	.19	8.0
Wisconsin.....	2,918,000	5	6,618	2.36	5,912	2.03	73	.03	81.0
Wyoming.....	241,000	5	179	.80	284	1.18	6	.02	47.3

¹ Population estimated, Jan. 1, 1920.

² Population, State census, 1925.

Yellow fever

No cases of yellow fever, or deaths from this disease, were reported in the United States during 1927.

*Hawaii Territory*¹—Cases reported, deaths registered, and indicated morbidity, mortality, and fatality rates, 1927

Disease	January	February	March	April	May	June	July	August	September	October	November	December	Total	Rates per 1,000 inhabitants	Fatalities per 100 cases
Chicken pox:															
Cases.....	12	25	27	40	29	18	3	3	5	6	13	18	199	0.65	-----
Diphtheria:															
Cases.....	41	48	36	30	21	41	23	28	25	24	17	30	364	1.19	-----
Deaths.....	7	7	7	1	3	4	-----	6	5	8	3	5	56	.18	15.4
Influenza:															
Cases.....	43	9	75	28	7	3	3	3	5	7	7	4	194	.64	-----
Deaths.....	5	4	1	1	3	2	-----	1	2	3	3	3	28	.09	14.4
Measles:															
Cases.....	157	222	300	255	140	81	40	29	26	14	17	7	1,288	4.22	-----
Deaths.....	4	6	6	11	9	5	4	1	-----	4	-----	-----	50	.16	3.9
Meningococcus meningitis:															
Cases.....	2	-----	1	1	7	2	5	6	3	1	5	3	36	.12	-----
Deaths.....	1	-----	-----	1	1	1	2	2	1	-----	1	-----	10	.03	27.8
Mumps:															
Cases.....	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	18	18	.06	-----
Deaths.....	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	2	-----	2	.01	11.1
Pneumonia (all forms):															
Deaths.....	55	55	49	56	55	45	45	45	35	43	57	55	595	1.95	-----
Poliomyelitis:															
Cases.....	12	9	3	3	-----	-----	-----	-----	-----	1	1	2	31	.10	-----
Scarlet fever:															
Cases.....	2	7	24	21	10	5	3	1	-----	-----	2	2	77	.25	-----
Tuberculosis (all forms):															
Cases.....	83	86	88	95	98	91	81	86	96	96	122	87	1,109	3.63	-----
Deaths.....	34	39	30	31	39	31	42	31	30	38	27	34	406	1.33	36.6
Tuberculosis (respiratory system):															
Cases.....	77	81	83	83	88	80	73	74	88	84	120	83	1,014	3.32	-----
Deaths.....	31	35	26	28	36	24	37	27	29	29	22	31	355	1.16	35.0
Typhoid fever:															
Cases.....	7	12	6	13	12	11	9	18	10	19	8	6	131	.43	-----
Deaths.....	1	4	1	1	3	1	-----	2	3	2	2	1	21	.07	16.0
Whooping cough:															
Cases.....	121	215	40	6	23	35	21	9	12	3	1	-----	486	1.59	-----
Deaths.....	1	2	8	4	-----	4	6	1	-----	-----	1	-----	27	.09	5.6

¹ Estimated population, July 1, 1927: 305,400.

*Philippine Islands*¹—Cases reported, deaths registered, and indicated morbidity, mortality, and fatality rates, 1927

Disease	January	February	March	April	May	June	July	August	September	October	November	December	Total	Rates per 1,000 inhabitants	Fatalities per 100 cases
Anthrax in man:															
Deaths.....	11	8	16	6	16	19	21	14	8	14	7	15	155	0.01	-----
Chicken pox:															
Cases.....	184	322	360	127	56	41	46	78	57	34	54	95	1,454	.12	-----
Deaths.....	1	1	1	1	1	1	1	1	1	1	1	1	8	.00	0.2
Diphtheria:															
Cases.....	18	16	19	10	19	17	23	22	21	21	19	23	228	.02	-----
Deaths.....	7	3	8	3	7	5	11	9	10	11	7	9	90	.01	39.5
Influenza:															
Cases.....	1,004	1,157	1,045	947	1,075	1,577	2,288	1,806	1,320	1,216	1,314	1,336	16,085	1.37	-----
Deaths.....	404	409	483	425	552	661	1,028	834	587	568	546	586	7,083	.60	44.0
Lethargic encephalitis:															
Deaths.....	1	1	2	2	2	2	1	1	1	1	1	1	10	.00	-----
Malaria:															
Cases.....	6,299	5,954	6,105	5,643	5,134	5,046	6,007	5,853	4,999	5,151	5,853	5,691	67,735	5.76	-----
Deaths.....	1,757	1,719	1,892	1,525	1,699	1,794	1,960	1,721	1,370	1,300	1,339	1,445	19,521	1.66	28.8
Measles:															
Cases.....	417	611	475	422	205	168	318	577	520	315	356	201	4,585	.39	-----
Deaths.....	124	98	148	113	68	67	63	79	51	55	60	43	969	.08	21.1
Meningococcus meningitis:															
Deaths.....	1	1	3	1	1	1	1	2	2	2	1	1	12	.00	-----
Mumps:															
Deaths.....	1	3	1	3	1	1	2	2	1	3	2	3	22	.00	-----
Pneumonia (all forms):															
Deaths.....	270	306	342	272	351	294	308	344	316	286	329	321	3,748	.32	-----
Polioomyelitis (infantile paralysis):															
Deaths.....	3	1	2	1	1	1	2	1	1	1	1	1	7	.00	-----
Rabies in man:															
Deaths.....	9	11	5	8	5	5	6	7	10	9	11	7	98	.01	-----
Smallpox:															
Cases.....	1	1	1	1	1	1	1	1	1	1	1	1	1	.00	-----
Tuberculosis (all forms):															
Cases.....	3,070	2,947	3,142	2,688	2,858	3,117	3,253	3,290	3,017	2,908	2,960	3,002	36,252	3.08	-----
Deaths.....	2,506	2,393	2,525	2,351	2,432	2,616	2,690	2,745	2,498	2,444	2,518	2,526	30,244	2.57	83.4
Tuberculosis (respiratory system):															
Cases.....	2,898	2,782	2,946	2,539	2,705	2,912	3,016	3,060	2,831	2,721	2,783	2,799	33,992	2.89	-----
Deaths.....	2,347	2,237	2,344	2,211	2,287	2,423	2,485	2,533	2,330	2,290	2,362	2,360	28,209	2.40	83.0
Typhoid fever:															
Cases.....	178	174	191	175	194	188	191	212	169	197	195	155	2,219	.19	-----
Deaths.....	114	124	117	105	134	111	119	147	103	128	122	113	1,437	.12	64.8
Whooping cough:															
Cases.....	232	187	200	179	182	189	187	244	197	270	323	296	2,686	.23	-----
Deaths.....	77	66	90	62	105	95	116	103	86	146	150	141	1,237	.11	46.1

¹ Estimated population, July 1, 1927, 11,752,000.

² Foreign Spaniard found on board S. S. Lancaster Castle from Singapore.

TREASURY DEPARTMENT
UNITED STATES PUBLIC HEALTH SERVICE

HUGH S. CUMMING, SURGEON GENERAL

STUDIES ON OXIDATION-REDUCTION

XV. POTENTIOMETRIC STUDIES OF THE AMINO INDO-
PHENOLS: PHENOL BLUE, *m*-TOLUYLENE DIAMINE
INDOPHENOL, AND *o*-TOLUIDINE INDOPHENOL

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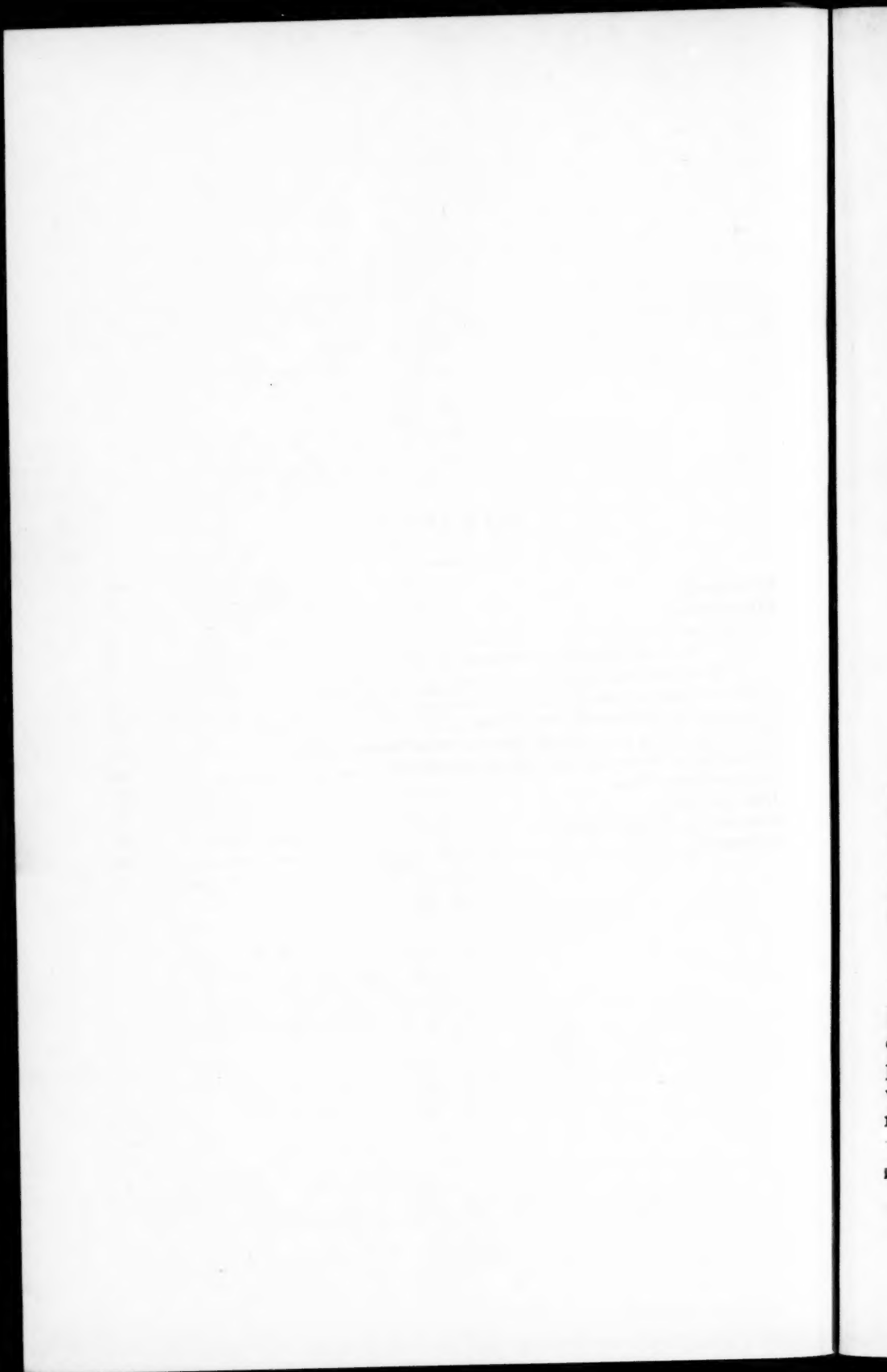
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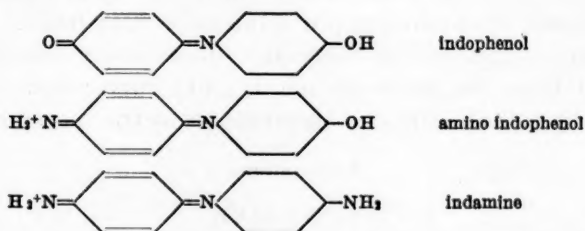


STUDIES ON OXIDATION-REDUCTION

XV. POTENTIOMETRIC STUDIES OF THE AMINO-INDOPHENOLS: PHENOL BLUE, *m*-TOLUYLENE DIAMINE INDOPHENOL, AND *o*-TOLUIDINE INDOPHENOL¹

Introduction

In this paper there are described the equilibrium potentials of (1) phenol blue, (2) *m*-toluylene diamine indophenol, and (3) *o*-toluidine indophenol, each in mixture with its leuco-product. The intermediate relation of these compounds to the indophenols and indamines is shown by the type structures below:



The indophenols and indamines have already been sufficiently characterized for preliminary purposes. There remained the examination of the amphoteric, intermediate type structure to complete the systematic studies of the whole group.

In accordance with the principles of nomenclature adopted in paper XIII of this series, the three amino indophenols studied may be named:

- (1) Benzenone indo-dimethylaniline
- (2) Benzenone indo-*m*-toluylene diamine
- (3) Benzenone indo-3'-methylaniline

although it should be noted that the terminology in this instance does not give due weight to the circumstance that these are very probably basic polar compounds when in solution. For convenience, we shall refer to these compounds in the following discussion by the names given in the title.

¹ Completing details in connection with this study were made in the laboratory of physiological chemistry at the Johns Hopkins University School of Medicine, Baltimore, Md.

Manuscript submitted for publication Feb. 23, 1929.

Dr. Max Phillips, co-author of this paper, resigned from the Public Health Service May 14, 1927.

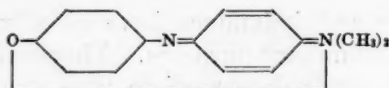
Proceeding by the customary methods, the E'_0 value of each system was determined at some constant value of pH by titration of the reductant in a buffer solution. The concentration of buffer was approximately 0.2 molar, the maximum concentration of indophenol titrated was 0.00009 molar and of titrating agent 0.0002 normal; therefore a specific correction for acidity change during titration was considered negligibly small when ferricyanide was used. This was confirmed experimentally by hydrogen electrode measurements. After the orienting titration to determine E'_0 at a suitable pH value, a fixed ratio of oxidant to reductant was carried through as wide a range of pH as was permitted by the stability of the systems to determine the variation of E'_0 with pH. For a more detailed outline of the experimental procedure the reader is referred to paper XIV.

The equations summarizing the general forms of the relations found are most rationally derived on the assumption that the amino indophenols in aqueous solution are basic polar compounds. The properties of toluidine indophenol, which was synthesized for the express purpose, were found to prove this important point.

The values of the various detectable dissociation constants were determined from the bends in each E'_0 :pH curve; and some were confirmed by colorimetric and spectrophotometric measurements.

Preparations

PHENOL BLUE



Phenol blue was first prepared by Koechlin and Witt in 1881 by the oxidation, with potassium dichromate, of dimethyl-paraphenylenediamine and phenol in alkaline solution. Möhlau (1883) showed that Bindschedler's green, when treated with alkali, yields phenol blue and dimethylamine. This investigator pointed out the instability of phenol blue in acid solution and indicated that it breaks down into benzoquinone and dimethyl-paraphenylenediamine. Möhlau (1885) subsequently gave a more detailed description of his method of obtaining phenol blue and showed that strong sodium hydroxide solution breaks it down into dimethylamine and simple indophenol. Fogh (1888) prepared phenol blue by the condensation of dimethylaniline with quinonechlorimide. Bayrac (1894) oxidized dimethylparaphenylenediamine and phenol in acetic acid solution with potassium dichromate and obtained phenol blue. Gnehm and Bots (1904) reduced nitrosodimethylaniline hydrochloride with zinc dust; and to the dimethylparaphenylenediamine thus obtained, phenol was added, the

solution was oxidized with sodium hypochlorite and phenol blue obtained. Crystallized from ether, it melted at 160°C . The leuco-base was also prepared; and crystallized from water it melted at 161° . Heller (1912) prepared phenol blue by the method of Gnehm and Bots. When crystallized from 95 per cent ethanol it melted at 167° . Wieland (1915) followed the method of Möhlau for the preparation of phenol blue. He crystallized it from ligroin and reported its melting point as 162°C .

EXPERIMENTAL

Preparation of phenol blue.—The method of Gnehm and Bots was followed. Ninety-three grams (0.5 mole) of freshly prepared nitro-sodimethylaniline hydrochloride² were dissolved in two liters of water and reduced at room temperature by the gradual addition of 70 grams of zinc dust. The mixture was well stirred by means of a mechanical stirrer. The reduction was complete at the end of four hours and the solution became blue. The reaction mixture was filtered, the residue was washed with hot water, and the washings were added to the main filtrate. To the filtrate was added 47 grams (0.5 mole) of phenol dissolved in the minimum amount of water. This was filtered again, and the filtrate was cooled to 0°C . and then oxidized by the addition, drop by drop, of 1 liter of normal sodium hypochlorite solution (2 moles).³

During this oxidation the reaction mixture was well stirred and the temperature maintained at 0°C . When all of the hypochlorite solution had been added, the reaction mixture was allowed to stand at room temperature for one hour. The dye was filtered off, washed with water, air-dried, and crystallized three times from ethyl acetate. It separated out as needle-like crystals having a bronzy luster.

Analysis: Sub., 0.1755 gm. yielded 19.0 c. c. N_2 (755.2 mm., 23°C .).

Calculated for $\text{C}_{14}\text{H}_{14}\text{ON}_2$: N, 12.38 per cent.

Found: N, 12.42 per cent.

The substance melted sharply at 162°C . (corr.).

Leuco-base of phenol blue.—The crude phenol blue, obtained after the oxidation with sodium hypochlorite and subsequent filtration, was made into a thin paste with water, 100 c. c. of 5 per cent sodium hydroxide was added, and the dye reduced by the addition of sodium hydrosulphite. The black reaction mixture was filtered, and the filtrate neutralized with acetic acid. The leuco-base separated out in nearly colorless needles. It was recrystallized from hot water. It melted at 163.6°C . (corr.). (The melting point given by Gnehm and Bots is 161°C .)

²This was prepared according to the method given in L. Vanino's *Präparative Chemie*, vol. 2, 669, 1923 ed.

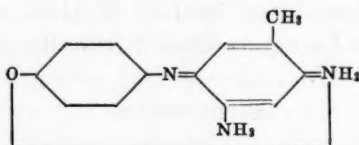
³The sodium hypochlorite solution was prepared according to the directions given by Raschig. Ber. 40, 4596 (1907).

Analysis: Sub., 0.1199 gm. yielded 12.9 c. c. N_2 (751.2 mm., 26° C.).

Calculated for $C_{14}H_{16}ON_2$: N, 12.27 per cent.

Found: N, 12.14 per cent.

PREPARATION OF *m*-TOLUYLENE DIAMINE INDOPHENOL



For the preparation of this dye the method of Ullmann and Gnae-dinger (1912) was followed. Six and one-tenth grams (0.05 mole) *m*-toluylene diamine and 7.3 grams (0.05 mole) *p*-aminophenol hydrochloride were added to 500 c. c. water and heated until completely dissolved. This was filtered and the filtrate was diluted to 1 liter and cooled to room temperature. To this was added 4 grams of sodium hydroxide dissolved in a small amount of water, and a current of air was passed through the solution for four hours. The reaction product separated out as green needles, which were filtered off, air-dried for one day, and then dried overnight in a vacuum desiccator over sulphuric acid. Yield, 8 grams. The melting point is 143° C. (corr.).

Analyses: Sub., 0.1454 gm. yielded 18.9 c. c. N_2 (762.7 mm., 24° C.).

Sub., 0.1475 gm. yielded 18.9 c. c. N_2 (764.5 mm., 25° C.).

Calculated for $C_{13}H_{13}ON_3 + 3H_2O$: N, 14.94 per cent.

Found: N, 15.00 and 14.77 per cent.

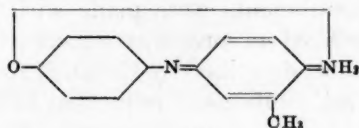
Preparation of leuco-base of m-toluylene diamine indophenol.—Eight grams of the oxidant were suspended in 400 c. c. of water and 25 c. c. of 10 per cent sodium hydroxide solution were added. To this, sodium hydrosulphite was added until the color was completely discharged and a clear solution obtained. This was filtered and to the filtrate a saturated solution of sodium bisulphite was added. A white crystalline precipitate was obtained, which was filtered off, washed with water, and dried for two days in a vacuum desiccator over sulphuric acid and finally for one day at 80° C. The color of the product was light gray and under the microscope appeared as needle-shaped crystals. Yield, 6 grams. The crystals darken at 185° C. and melt at 203° C. (corr.).

Analyses: 0.1352 gm. yielded 21.7 c. c. N_2 (756.1 mm., 27° C.).

0.0992 gm. yielded 16.1 c. c. N_2 (757 mm., 25° C.).

Calculated for $C_{13}H_{15}ON_3$: N, 18.34 per cent.

Found: N, 18.17 and 18.52 per cent.

PREPARATION OF *o*-TOLUIDINE INDOPHENOL

Twenty-nine grams (0.2 mole) of *p*-aminophenol (Eastman) and 214 grams *o*-toluidine were added to 2,000 c. c. of water and heated until dissolved. The solution was filtered clear and then there was added 2,000 c. c. water containing 16 grams NaOH. A clear violet color developed. The pH of the solution is greater than 11. A less impure product is obtained by operating near pH 8.5 by adjustment with a suitable buffer. A current of air was bubbled through the solution for six hours, while it became a deeper and deeper purple. Examined under the microscope at this stage, the solution showed Z-shaped clusters of dark bar crystals. After standing over night there separated out 2 grams of the product, short bar crystals with a dark green luster and purple by transmitted light, which were dried in a vacuum desiccator over sulphuric acid and analyzed for nitrogen by the Kjeldahl method.

Calculated for $C_{13}H_{12}ON_2$: N, 13.21 per cent.

Found: N, 13.15 and 13.18 per cent.

The product contracted without melting at 235° C. (corr.).

The mother liquor was treated with solid NaCl and chilled to separate out the compound remaining in solution. About 20 grams of air-dried material were recovered from a single experiment.

Preparation of leuco-toluidine indophenol.—The oxidant obtained as above, 10 grams, was suspended in 500 c. c. buffer of pH 9.5 and sodium hydrosulphite was added until the color was discharged. The solution was filtered and a saturated solution of sodium bisulphite was added. The yellowish crystals were recrystallized as noted below. Another method of preparing the leuco-compound is that described in Paper XIII of this series, using hydrogen sulphide. The product obtained was recrystallized by dissolving in hot water, with H_2S running through. The solution was filtered, and, on cooling, there separated out perfectly colorless crystals of elongated, pointed plates. These were washed with cold water and quickly transferred to a vacuum desiccator over H_2SO_4 and containing a nitrogen atmosphere. The yield was two grams from 50 grams of crude oxidant. The dry crystals were analyzed for nitrogen by the Kjeldahl method.

Calculated for $C_{13}H_{14}ON_2$: N, 13.09 per cent.

Found: N, 12.85 and 12.95 per cent.

The melting point was not sharp. Shrinking and melting occurred between 146° and 151° C. (corr.).

Electrode Measurements

The potential measurements were made with the apparatus and by the methods described in previous papers of this series. The protected reservoir-buret described by Cohen (1928) was found useful, especially when several solutions of reductant had to be prepared at one time and stored. Figure 1 shows a modification of the apparatus employing a 120° cock at the top, which greatly facilitates cleaning and deaeration. (Cf. Cohen, 1928, for a fuller description of the apparatus.)

All electrode measurements were made at $30^{\circ} \pm 0.02$. Except where otherwise mentioned, the buffer solutions were those described in Table 4 of Paper VIII in this series, no great precision in the construction of these solutions being attempted, since hydrogen-electrode measurements were made in each instance shortly before or after a buffer had been used. The standard of electrode potential upon which all values are based is that of a hydrogen electrode in 0.05 molar KH-phthalate (-0.2386 volt). The electrode potentials, E_n , reported are those referred to the normal hydrogen electrode.

Potentials of the phenol blue system⁴

Electrode potential-differences of solutions containing definite mixtures of phenol blue and its leuco-base were fairly stable in buffer solutions between pH 2.5 and 9.7. There were drifts of potential which were disturbing only at the extremes of acidity and alkalinity, but which did not interfere seriously in the intermediate zone.

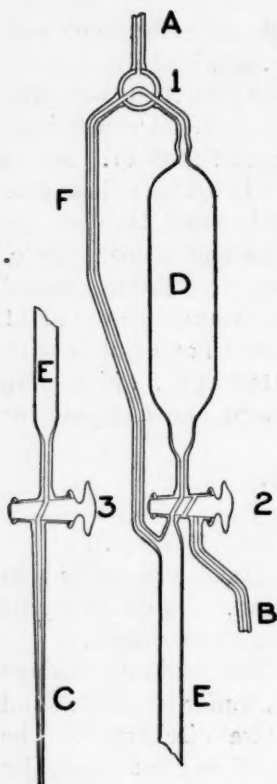


FIGURE 1.—Protected reservoir-buret

TABLE 1.—Rates of potential drift in 9×10^{-5} M phenol blue, 53.8 per cent reduced

pH	Time (min.)	Milli-volts per minute	pH	Time (min.)	Milli-volts per minute
1.077	9	+2.78	6.942	33	-0.040
1.372	5	+1.66	7.472	50	-.028
1.979	32	+ .30	7.924	49	-.035
2.461	44	-.011	7.986	44	-.057
2.868	24	-.038	8.381	38	-.042
3.322	54	-.050	8.592	34	-.044
3.831	40	-.050	9.187	70	-.027
4.345	52	-.050	9.686	46	-.037
4.858	43	-.046	11.02	41	-.244
5.505	73	-.020	11.48	24	-.583
5.803	40	-.031	11.76	7	-1.43
6.269	52	-.025	12.29	5	-3.90
6.620	42	-.033	12.59	5	-4.28

⁴The final form of the data presented in connection with the study of phenol blue is based upon investigations pursued intermittently from 1923 to 1927 in collaboration with Prof. W. Mansfield Clark.

In Table 1 are shown the overall magnitudes and directions of potential drifts at different pH values. First to be noted are the tendencies toward more electropositive values at high acidities down to pH 2, and toward more electronegative values from pH 2.5 down to the most alkaline buffer. Similar tendencies were noted with Bindschedler's green (Paper XI), and with the indophenols. The curves of potential drift were not similar in all cases. At pH 1.077, 1.372, and 1.979 they were practically linear; this was also the case between pH 11.02 and 12.59. In solutions from pH 2.5 to 4.3 the potentials for the first few minutes drifted slightly in a positive direction, reached a more or less steady plateau value, and then drifted back to increasingly negative values. From pH 4.9 to 9.7 the drift was always to more negative values, rapid at first, but usually approaching a plateau in 30 to 40 minutes. As we shall see, these drifts are probably associated with the decomposition of phenol blue to indophenol or to quinone and other products.

In the second place, Table 1 shows that there is a wide range of pH in which the drift in potential is relatively slow. In many cases it was much slower than appears from the table, which gives only the average for unequal intervals and does not take into proper account successive changes in rate. We did not study the reaction velocities involved, but sought by rapid operation and suitable controls to minimize these effects.

Titration of leuco-phenol blue.—The preparation of the leuco-base gave every evidence of being pure, and our orienting data were obtained from the titration of this with the oxidizing agent. We shall show presently that the oxidant, although of high purity analytically, gave discrepant results, suggesting the presence of foreign active species.

The potentials of the phenol blue:leuco-phenol blue system are too electropositive in acid regions for the employment of ferricyanide, chromate, or quinone as oxidizing agents. A titration at pH 1.99 with chlorine-water gave potentials which drifted to more positive values. Since the oxidant decomposes rather quickly to quinone in acid solution, our orienting titrations were made near neutrality.

Table 2 gives the result of a titration with 0.0001 N ferricyanide. The stock solution (0.0002 molar) of leuco-base was made by dusting 0.0091 gm. into 200 c. c. deaerated water containing 0.4 c. c. N/5 HCl (0.00004 mole HCl excess to aid solution). For titration, 5 c. c. of this stock was added to 50 c. c. phosphate buffer No. 16. The pH of this mixture was considered to be 7.472, the same as that found in 50 c. c. buffer + 5 c. c. water, the effect of the dye and the slight amount of added acid being found negligible for present purposes. The end-point of 19.6 c. c. gave for E' the average value 0.1943, with small deviations at both ends of the curve.

TABLE 2.—Titration of leuco-phenol blue chloride (55 c. c. approx. 1.82×10^{-5} M + slight excess HCl) with $K_3Fe(CN)_6$ in phosphate buffer No. 16, pH 7.472

[Titration time, 30 minutes]

$K_3Fe(CN)_6$ c. c.	Oxidation %	$0.03006 \times$ $\log \frac{[S_r]}{[S_o]}$	E_h	E'
2	10.20	+0.0284	+0.1669	(0.1953)
3	15.31	.0223	.1725	(.1948)
4	20.41	.0178	.1767	.1945
5	25.51	.0140	.1804	.1944
6	30.61	.0107	.1836	.1943
7	35.71	.0077	.1866	.1943
8	40.82	.0048	.1894	.1942
9	45.92	+ .0021	.1922	.1943
10	51.02	— .0005	.1947	.1942
11	56.12	— .0032	.1974	.1942
12	61.23	— .0059	.2001	.1942
13	66.33	— .0089	.2031	.1942
14	71.43	— .0120	.2064	.1944
15	76.53	— .0154	.2099	.1945
16	81.64	— .0195	.2142	.1947
17	86.74	— .0245	.2196	(.1951)
18	91.84	— .0317	.2275	(.1962)
19.6	100.00			

Average = 0.1943

A similar titration was made with 0.0001 N chlorine-water in the same buffer. The result is shown in Table 3. The end of the titration curve at 21 c. c. chlorine-water sloped away from the steep rise expected in a normal titration. However, by accepting the end-point found by the ferricyanide titration, namely, 19.6 c. c. (assuming that the excess chlorine was reduced by dimethyl-*p*-phenylenediamine formed in decomposition), there is obtained a concordant set of E' values averaging 0.1953. This average is one millivolt more positive than that obtained with ferricyanide and may be taken as evidence that the chlorine not only oxidized the leuco-base to phenol blue but also exerted a secondary effect.

TABLE 3.—Titration of leuco-phenol blue chloride (55 c. c. approx. 1.82×10^{-5} M + slight excess HCl) with chlorine-water in buffer No. 16, pH 7.472

[Titration time, 28 minutes]

Cl-water c. c.	Oxidation %	$0.03006 \times$ $\log \frac{[S_r]}{[S_o]}$	E_h	E'
2	10.20	+0.0284	0.1672	0.1956
3	15.31	.0223	.1730	.1953
4	20.41	.0178	.1775	.1953
5	25.51	.0140	.1812	.1952
6	30.61	.0107	.1845	.1952
7	35.71	.0077	.1874	.1951
8	40.82	.0048	.1903	.1951
9	45.92	+ .0021	.1929	.1950
10	51.02	— .0005	.1957	.1952
11	56.12	— .0032	.1984	.1952
12	61.23	— .0059	.2012	.1953
13	66.33	— .0089	.2041	.1952
14	71.43	— .0120	.2073	.1953
15	76.53	— .0154	.2106	.1952
16	81.64	— .0195	.2149	.1954
17	86.74	— .0245	.2199	.1954
18	91.84	— .0317	.2270	.1953
19.6	100.00			

Average = 0.1952

Another ferricyanide titration was made using new solutions throughout. The diluted buffer No. 16 had a pH of 7.479, and the E'_0 found was 0.1939 (see Table 4). The difference, -0.0004 volt, between this value and that found at pH 7.472 is accounted for by the difference in pH between the two experiments.

TABLE 4.—*Titration of leuco-phenol blue chloride (55 c. c. approx. $1.82 \times 10^{-4} M$ + slight excess HCl) with $K_3Fe(CN)_6$ in buffer No. 16, pH 7.479*

$K_3Fe(CN)_6$ c. c.	Oxidation %	$0.03006 \times$ $\log \frac{[S_1]}{[S_0]}$	E_h	E'_0
2	9.66	+0.0292	0.1660	(0.1952)
3	14.49	.0232	.1712	.1944
4	19.32	.0187	.1754	.1941
5	24.15	.0149	.1789	.1938
6	28.98	.0117	.1821	.1938
7	33.82	.0088	.1849	.1937
8	38.65	.0060	.1877	.1937
9	43.48	.0034	.1903	.1937
10	48.31	+ .0009	.1928	.1937
11	53.14	— .0016	.1954	.1938
12	57.98	— .0042	.1980	.1938
13	62.81	— .0068	.2007	.1939
14	67.64	— .0096	.2035	.1939
15	72.47	— .0127	.2067	.1940
16	77.30	— .0160	.2103	.1943
17	82.13	— .0199	.2142	.1943
18	86.96	— .0248	.2192	.1944
19	91.79	— .0316	.2262	(.1946)
20.7	100.00	—	—	—

Average = 0.1939

Titration of phenol blue.—Our sample of phenol blue was of high purity analytically, but the titration curves obtained were very unsatisfactory. Two of the many experiments will be cited to illustrate the difficulties encountered.

Table 5 shows the result of titrating 0.00009 M phenol blue with 0.00023 M leuco-indigo disulphonate at pH 2.862. An equivalent amount of HCl had been added to the phenol blue to make the chloride, but a preliminary titration showed only about one-third had dissolved. The suspension of oxidant was, therefore, heated to boiling to hasten solution. The resulting titration yielded a rather discordant set of values for E'_0 with an average, 0.5081, over 3 mv. more positive than that calculated. That this discrepancy was due to the formation of benzoquinone is suggested by the following comparison at pH 2.86:

E'_0 of phenol blue system (calc.) = 0.505 v.

E'_0 of phenol blue system (found.) = 0.508 v.

E'_0 of benzoquinone system (calc.) = 0.522 v.

Further direct chemical proof of this decomposition is given below.

TABLE 5.—*Titration of phenol blue chloride (55 c. c. approx. 9×10^{-5} M) with leuco-indigo disulphonate in buffer No. 5, pH 2.862*

[Titration time, 27 minutes]

Leuco-indigo disulphonate c. c.	Reduction %	$0.03006 \times$ $\log \frac{[S_1]}{[S_0]}$	E_h	E'_0
2	15.38	-0.0223	0.5249	(0.5026)
3.05	23.46	-0.0151	.5213	(.5062)
4	30.77	-0.0106	.5181	.5075
5	38.46	-0.0061	.5146	.5085
6	46.15	-0.0020	.5109	.5089
7	53.85	+0.0020	.5070	.5090
8	61.54	.0061	.5028	.5089
9	69.23	.0106	.4979	.5085
10	76.92	.0157	.4920	.5077
11	84.62	.0223	.4848	.5071
12	92.30	.0324	.4745	.5069
13	100.00			

Average = 0.5081

NOTE.—The oxidant was heated to boiling to hasten solution.

Table 6 shows the result of another titration of the oxidant with leuco-indigo disulphonate. In this case the concentration of dye was decreased to 0.000018 M and a buffer of pH 6.946 was chosen. The excess HCl added to aid solution was neutralized with an equivalent amount of NaOH before the dye solution was added to the buffer. No heat was applied to the dye solution. The average E'_0 found is 0.2305, as compared with 0.228 calculated, and the agreement with the theoretical titration curve is very poor. The experimental curve shows a skew, suggesting the presence of foreign oxidant at the beginning of the titration. By assuming about 6 per cent decomposition to quinone and resolving the titration curves of the quinone and phenol blue systems, there is obtained a concordant series of E'_0 values averaging 0.228 ± 0.0005 , which agrees with the calculated.

TABLE 6.—*Titration of phenol blue chloride (55 c. c. approx. 1.8×10^{-5} M) with leuco-indigo disulphonate in buffer No. 15, pH 6.946*

[Titration time, 20 minutes]

Leuco-indigo disulphonate c. c.	Reduction %	$0.03006 \times$ $\log \frac{[S_1]}{[S_0]}$	E_h	E'_0
2	11.11	-0.0271	0.2615	0.2844
3	16.67	-0.0210	.2543	.2333
4	22.22	-0.0164	.2490	.2326
5	27.77	-0.0125	.2437	.2312
6	33.33	-0.0091	.2406	.2315
7	38.89	-0.0059	.2370	.2311
8	44.44	-0.0029	.2335	.2306
9	50.00	.0000	.2301	.2301
10	55.55	+0.0029	.2268	.2297
11	61.11	.0059	.2235	.2294
12	66.67	.0091	.2201	.2292
13	72.23	.0125	.2165	.2290
14	77.77	.0164	.2126	.2290
15	83.33	.0210	.2079	.2289
16	88.89	.0271	.2025	.2296
17	94.44	.0369	.1933	.2302
18	100.00			

Average = 0.2305

NOTE.—The solution of oxidant was not heated.

Isolation and identification of benzoquinone as a decomposition product of phenol blue in acid solution.—As we have found, the electrode potentials obtained with phenol blue, especially in the upper acid ranges, were too electropositive. Since qualitative evidence indicated that this was probably caused by decomposition, it seemed desirable to attempt the isolation of the suspected active product formed under these conditions. Möhlau (1883, 1885) states that phenol blue in acid solution breaks down into benzoquinone and dimethyl-*p*-phenylenediamine, but he failed to give any experimental details. Accordingly, the following experiment was carried out: Two and twenty-six hundredths grams (0.01 mole) of phenol blue were dissolved in 1 liter of normal HCl and left to stand at room temperature for four days. The solution was extracted with ether, the ether was evaporated off, and the residue was distilled in a current of steam. The distillate was extracted with ether, the ether was removed by evaporation, and the residue was sublimed. Golden yellow, needle-shaped crystals were obtained. These needles had the characteristic penetrating odor of benzoquinone. The latter was further identified by its melting point (116° C.).

The decomposition of phenol blue to indophenol.—So-called oxidative deamination of the quinone-imide dyes is a well known phenomenon which occurs very readily in alkaline solutions. The polychroming of methylene blue seems to depend largely upon this process. The successive deamination of the indamine, Bindschedler's green, to phenol blue and then to indophenol in alkaline solution was discussed in paper XIII of this series.

Spectrophotometric evidence shows that this change occurs also, but apparently more slowly, in acid solution. A phenol blue chloride solution was kept at pH 4 for three weeks and then examined. The purple color had changed to a lavender, and the solution exhibited two dissociations, one near pH 5.0 and the other near pH 8.0. Analysis of the color absorption in the visible spectrum confirmed the deduction that the solution contained a mixture of phenol indophenol and phenol blue.

Relation of E' to pH in the phenol blue system.—In view of the demonstrated instability of the oxidant, it was decided at first to obtain the necessary data by starting with a solution of the reductant, converting half of it to the oxidant by the addition of ferricyanide and then working quickly before appreciable decomposition occurred. As will be seen from Figure 2, the curves of the phenol blue and ferricyanide systems intersect near pH 3.5; consequently the mixture prepared as shown could not give readily interpretable values in buffers more acid than pH 5.0. However, below this zone satisfactory data were obtained. The results of this experiment are shown in Table 7, Series I. The solution of reductant contained 0.0002 molar dye and one equivalent excess HCl. To about 100 c. c. of this were added 3.6 c. c. of 0.0055 N $K_3Fe(CN)_6$, and the mixture was stirred

vigorously with deoxygenated nitrogen in a protected reservoir. To buffer 16 (the same in which the orienting titration was made) was added 5 c. c. of the above mixture, and the potential measurement showed it to be 40.80 per cent oxidized. After measurements had been made in the other buffers, a check determination in buffer 16 gave a value within 0.1 mv. of that first obtained.

To obtain values in the acid range, a preliminary experiment showed that oxidant could be mixed with reductant to give fairly reliable potentials, provided that the manipulations were done quickly. The results are shown in Series II, Table 7. In this case the mixture was 47.3 per cent oxidized, and the final total concentration of dye in each buffer was 0.00036 molar.

Following this a complete series of measurements was made (Series III, Table 7). A solution of 0.001 M reductant was prepared and to it was added an equal quantity of 0.001 M oxidant. The resulting mixture was found to be 46.16 per cent oxidized (a small portion of the oxidant had remained undissolved). This was added in 5 c. c. portions to 50 c. c. buffer for the electrode measurements. The peculiar drifts in potential at the different pH levels have already been discussed and noted in Table 1. Nevertheless, a consistent set of values was obtained which conformed reasonably well with those calculated by means of the electrode equation and the constants of the system.

TABLE 7.—Phenol blue : Relation of E'_0 to pH

Buffer No.	pH	Series I		Series II		Series III		E'_0 , Average	E'_0 , calculated ¹	Deviation
		E_h	E'_0	E_h	E'_0	E_h	E'_0			
1	1.077					0.6106	0.6126	0.6126	0.6124	+0.0002
2	1.372			0.5936	0.5945	.5905	.5925	.5935	.5947	-.0012
3	1.979					.5558	.5578	.5578	.5582	-.0004
4	2.461			.5287	.5296	.5274	.5294	.5295	.5292	+ .0003
5	2.868					.5025	.5045	.5045	.5046	-.0001
6	3.322					.4750	.4770	.4770	.4771	-.0001
7	3.631					.4434	.4454	.4454	.4458	-.0004
8	4.345					.4107	.4127	.4127	.4127	.0000
9	4.858					.3758	.3778	.3778	.3770	+ .0008
10	5.399	.3310	.3359					.3359	.3360	-.0001
10	5.505					.3272	.3292	.3292	.3279	+ .0013
11	5.803			.3044	.3053	.3043	.3063	.3058	.3052	+ .0006
13	6.269	.2673	.2722			.2700	.2720	.2721	.2717	+ .0004
14	6.620	.2442	.2491			.2467	.2487	.2489	.2482	+ .0007
15	6.942					.2255	.2475	.2275	.2277	-.0002
15	6.946	.2225	.2274					.2274	.2274	.0000
16	7.472	.1894	.1943	.1934	.1943	.1923	.1943	.1943	.1950	-.0007
17	7.924	.1622	.1671			.1662	.1682	.1677	.1677	.0000
20	7.986	.1586	.1635			.1620	.1640	.1638	.1640	-.0002
21	8.381	.1347	.1396			.1382	.1402	.1399	.1404	-.0005
22	8.592	.1228	.1277			.1259	.1279	.1278	.1280	-.0002
23	9.187	.0890	.0939			.0917	.0937	.0938	.0939	-.0001
24	9.686	.0630	.0679			.0658	.0678	.0679	.0679	.0000
25	11.02					+.0144	.0164	.0164	.0165	-.0001
26	11.48					.0000	+.0020	+.0020	+.0021	-.0001
27	11.76					-.0063	-.0063	-.0063	-.0065	+ .0002
28	12.29					-.0238	-.0218	-.0218	-.0226	+ .0008
30	12.59					-.0308	-.0288	-.0288	-.0316	+ .0028

¹ Calculated by means of equation (13) using—

$$E'_{\text{pH } 0} = +0.6772$$

$$K_o = 1.413 \times 10^{-3} \quad \text{p}K_o = 4.85$$

$$K_{12} = 1.096 \times 10^{-4} \quad \text{p}K_{12} = 5.96$$

$$K_r = 1.318 \times 10^{-10} \quad \text{p}K_r = 9.88$$

Potentials of the *m*-Toluylene Diamine Indophenol System

The preparations of oxidant and reductant available were of high analytical purity, but reliance for our orienting titrations was placed on the reductant. It was apparent that the oxidant underwent some sort of decomposition in dilute buffer solutions, and the resulting equilibrium potentials were therefore not above suspicion. One case will be cited. A solution was made containing 0.001 molar diamine indophenol chloride; 5 c. c. of this was added to 50 c. c. buffer of pH 6.624 and titrated with 0.0005 N leuco-indigo carmine. Attainment of equilibrium was sluggish after each addition of reducing agent, and the experimental titration curve had a definite skew which could be interpreted as being caused by foreign active oxidant at the first part of the titration. The average E'_0 was 0.1390, as compared with the calculated value, 0.1379. Determination of the identity of the active foreign material in the oxidant solution was not made.

Titration of the leuco-base.—A 0.001 molar solution of the reductant was made by dusting the crystals into deaerated water containing two equivalents of HCl to make the dichloride. The crystals dissolved completely, and the resulting solution had a very slight reddish tinge from the surface oxidation of the crystals. Titration with K_2CrO_4 near neutrality gave sluggish potentials. Ferricyanide was found to be a satisfactory titrating agent. Table 8 shows the results of an experiment at pH 6.617. Equilibrium was attained almost instantly after each addition of reagent, and a fairly uniform set of constants resulted. The average E'_0 value is 0.1371.

TABLE 8.—*Titration of leuco-m-toluylene diamine indophenol dichloride (55 c. c. approx. $9.1 \times 10^{-3} M$ + slight excess of HCl) with $K_3Fe(CN)_6$ at pH 6.617*

$K_3Fe(CN)_6$ c. c.	Oxidation %	$0.03006 \times$ $\log \frac{[S_r]}{[S_o]}$	E_h	E'_0
2	10.18	+0.0284	0.1080	(0.1364)
4	20.37	.0178	.1188	.1366
5	25.46	.0140	.1227	.1367
6	30.55	.0107	.1262	.1369
7	35.64	.0077	.1293	.1370
8	40.73	.0049	.1321	.1370
9	45.82	+.0022	.1349	.1371
10	50.92	-.0005	.1376	.1371
11	56.01	-.0032	.1404	.1372
12	61.10	-.0059	.1431	.1372
13	66.20	-.0088	.1459	.1371
14	71.29	-.0119	.1490	.1371
15	76.38	-.0153	.1525	.1372
16	81.47	-.0193	.1565	.1372
17	86.56	-.0244	.1616	.1372
18	91.65	-.0313	.1685	.1372
19.64	100.00			

Average = 0.1371

In another experiment the leuco-base was prepared by reduction of an oxidant solution with hydrogen in the presence of platinized asbestos. The resulting solution of reductant, which was water-white after preparation, turned to a pale clear yellow in about one hour.

It is not certain whether this was due to the action of light or not. This solution, when titrated with ferricyanide at pH 6.617 gave a very sharp end-point, and the agreement with the theoretical titration curve was excellent. The average E'_0 value obtained was 0.1371 ± 0.0002 .

Relation of E'_0 to pH.—A fixed mixture was made by mixing 0.001 molar solutions of oxidant and reductant chlorides. Measurement of the potential of 5 c. c. of this mixture in 50 c. c. buffer of pH 6.617 showed it to be 48.86 per cent reduced. Table 9 shows the values obtained, corrected to 50 per cent reduction, in various buffers from pH 1.077 to 12.57. The data are also plotted in Figure 2. There occurred peculiar drifts in potential similar to those mentioned in the case of phenol blue, but the drifts were mostly very slow; and from about pH 3 to 8, plateau values were soon reached and maintained with a variation of 0.0003 volt for over an hour.

TABLE 9.—*m*-Toluylene diamine indophenol. Relation of E'_0 to pH

Buffer No.	pH	E'_0 (found)	E'_0 (calc.) ¹	Deviation
1	1.077	+0.4672	+0.4706	-0.0034
2	1.372	.4437	.4442	-.0005
3	1.979	.3911	.3911	.0000
4	2.461	.3529	.3512	+.0017
5	2.868	.3205	.3203	+.0002
6	3.322	.2896	.2891	+.0005
7	3.821	.2571	.2572	-.0001
8	4.345	.2280	.2275	+.0005
9	4.858	.2012	.2012	.0000
10	5.505	.1742	.1743	-.0001
11	5.803	.1631	.1638	-.0007
13	6.269	.1486	.1485	+.0001
14	6.617	.1371	.1375	-.0004
15	6.942	.1266	.1271	-.0005
16	7.472	.1085	.1090	-.0009
17	7.924	.0913	.0913	.0005
20	7.986	.0883	.0887	-.0004
21	8.381	.0699	.0702	-.0004
22	8.592	.0601	.0594	+.0003
23	9.187	+.0267	+.0267	.0007
24	9.689	-.0013	-.0012	-.0000
25	10.90	-.0599	-.0599	.0001
26	11.41	-.0820	-.0820	.0000
27	11.71	-.0964	-.0967	+.0000
28	12.26	-.1264	-.1265	+.0003
30	12.57	-.1434	-.1443	+.0001

¹ Calculated by means of equation (15) using—

$E'_{pH 0} = +0.5674$	$pK_o = 8.07$
$K_o = 8.511 \times 10^{-9}$	$pK_{obl} = 2.31$
$K_{obl} = 4.898 \times 10^{-3}$	$pK_r = 10.32$
$K_r = 4.786 \times 10^{-11}$	$pK_{r2} = 4.96$
$K_{r2} = 1.096 \times 10^{-3}$	$pK_{r3} = 2.72$
$K_{r3} = 1.096 \times 10^{-3}$	$pK_w = 13.73$
$K_w = 1.86 \times 10^{-14}$	

These observations indicate that the toluylene diamine indophenol system is far more stable electromotively than the phenol blue system, and other experimental evidence tends to confirm this view. For this reason, *m*-toluylene diamine indophenol may be tentatively included in the list of useful oxidation-reduction indicators. To aid in the use of this indicator, there are given in Table 10 the potentials of an equimolecular mixture of oxidant and reductant for uniform increments of pH.

TABLE 10.—*m*-Toluylene diamine indophenol. Calculated E' values between pH 5.0 and 9.0

pH	E'
5.0	+0.1947
5.2	.1861
5.4	.1782
5.6	.1708
5.8	.1639
6.0	.1572
6.2	.1507
6.4	.1443
6.6	.1380
6.8	.1316
7.0	.1252
7.2	.1185
7.4	.1116
7.6	.1043
7.8	.0965
8.0	.0881
8.2	.0790
8.4	.0692
8.6	.0589
8.8	.0482
9.0	.0371

Cohen, Chambers, and Reznikoff (1928) have tested this indicator by microinjection into *Amoeba dubia* and found it to be apparently non-toxic while undergoing intracellular reduction. A tendency for the color slowly to accumulate on cytoplasmic inclusions was noted in amebae after brief immersion in the dye solution. In the more sensitive marine ova (sand-dollar and starfish) Chambers, Pollack, and Cohen (1929) found that the oxidant was much more toxic than the reductant.

The diamine system lies close to the 1-naphthol-2-sulphonate indophenol system on the potential scale and should be useful in a comparison of the behavior of different *types* of oxidation-reduction indicators.

Potentials of the *o*-toluidine indophenol system

A study of this system was considered important from two standpoints. First, to afford evidence as to the allocation of dissociations in the other two members of the series, and second, to provide a basis for determining the effects of amino group substitutions on electrode potentials. Unfortunately precise measurements were found impossible, because of the great instability of the oxidant. We believe, after our experience with this compound, that a procedure can be devised which will yield a somewhat greater degree of precision than that reported here, but the data, crude as they are, give sufficiently definite answers regarding the main points at issue. It also seems wiser to wait for more reliable stable compounds for the establishment of precise data.

The oxidant was found useless for potential measurements, because apparently any slight excess of acid or alkali necessary to aid solution caused rapid decomposition. Solution in buffers seemed too slow to be practicable. Therefore, resort was had to titrations of the reduc-

tant. Fortunately a sufficient number of points were established on the E'_{\circ} :pH curve to establish the main outlines of the system.

Titrations of the reductant.—Crystals of the reductant were dusted into deaerated water containing an equivalent amount of HCl plus a slight excess to hasten solution. The concentration of the compound was about 0.0005 molar. The resulting solution was clear, with a very slight purplish tinge from the surface oxidation of the crystals. This was titrated with ferricyanide at pH 6.465 and 8.649. The results are shown in Table 11. At pH 6.465 the titration curve merges with the ferri-ferrocyanide curve near the end-point, but at pH 8.649 the end-point was fairly sharp. In both cases the mid-portion of the titration curve conformed satisfactorily with the theoretical, but the ends diverged considerably. Tables 12 and 13 show three more titrations with ferricyanide made on different days with fresh solutions.

TABLE 11.—*Titrations of leuco-toluidine indophenol with $2.5 \times 10^{-4} N K_3Fe(CN)_6$*

$K_3Fe(CN)_6$ c. c.	Oxidation %	$0.03006 \times$ $\log \frac{[S_r]}{[S_o]}$	At pH 6.465 (Time 23 minutes)		At pH 8.649 (Time 36 minutes)	
			E_h	E'_{\circ}	E_h	E'_{\circ}
2	10.53	+0.0279	+0.2266	0.2545	+0.0936	0.1215
3	15.79	.0218	.2330	.2548	.1000	.1218
4	21.05	.0173	.2377	.2550	.1058	.1221
5	26.32	.0134	.2417	.2551	.1088	.1222
6	31.58	.0101	.2451	.2552	.1123	.1224
7	36.84	.0070	.2482	.2552	.1154	.1224
8	42.11	.0042	.2511	.2553	.1183	.1225
9	47.37	+.0014	.2539	.2553	.1211	.1225
10	52.63	-.0014	.2567	.2553	.1239	.1225
11	57.89	-.0042	.2594	.2552	.1267	.1225
12	63.16	-.0070	.2622	.2552	.1296	.1226
13	68.42	-.0101	.2653	.2552	.1327	.1226
14	73.68	-.0134	.2685	.2551	.1358	.1224
15	78.95	-.0173	.2722	.2549	.1396	.1223
16	84.21	-.0218	.2764	.2546	.1436	.1218
17	89.47	-.0279	.2817	(.2538)	.1490	(.1211)
19	100.00	-----	-----	-----	-----	-----

Averages, 0.255 ----- 0.122

TABLE 12.—*Titrations of leuco-toluidine indophenol with $2.5 \times 10^{-4} N K_3Fe(CN)_6$*

$K_3Fe(CN)_6$ c. c.	Oxidation %	$0.03006 \times$ $\log \frac{[S_r]}{[S_o]}$	At pH 7.426 (Time 15 minutes)		At pH 9.584 (Time 14 minutes)	
			E_h	E'_{\circ}	E_h	E'_{\circ}
2	11.43	+0.0267	0.1698	0.1965	0.0433	(0.0700)
3	22.86	.0159	.1811	.1970	.0553	.0712
4	34.28	.0085	.1888	.1973	.0631	.0716
5	40.00	.0053	-----	-----	.0665	.0718
6	45.71	+.0022	.1952	.1974	.0697	.0719
7	51.43	-.0007	.1983	.1976	.0727	.0720
8	57.14	-.0038	.2013	.1975	.0757	.0719
9	62.86	-.0069	.2044	.1975	.0788	.0719
10	68.57	-.0102	.2077	.1975	.0822	.0720
11	74.28	-.0138	-----	-----	.0858	.0720
12	80.00	-.0181	.2155	.1974	.0900	.0719
13	85.71	-.0309	.2276	.1967	.1022	.0713
17.5	100.00	-----	-----	-----	-----	-----

Averages, 0.197 ----- 0.072

TABLE 13.—Titration of leuco-toluidine indophenol with 2.5×10^{-4} N $K_3Fe(CN)_6$ in buffer No. 24½, pH 11.04

[Titration time, 14 minutes]

$K_3Fe(CN)_6$ c. c.	Oxidation %	$0.03006 \times$ $\log \frac{[S_r]}{[S_o]}$	E_h	E'_o
2.....	10.75	+0.0276	-0.0241	+0.0035
4.....	21.50	.0169	-.0130	.0039
6.....	32.26	.0097	-.0055	.0042
8.....	43.01	.0037	+.0006	.0043
9.....	48.38	+.0008	.0033	.0041
10.....	53.76	-.0020	.0061	.0041
11.....	59.13	-.0048	.0089	.0041
12.....	64.51	-.0078	.0119	.0041
13.....	69.89	-.0110	.0151	.0041
14.....	75.26	-.0145	.0186	.0041
16.....	86.02	-.0237	.0273	.0036
18.6.....	100.00			

Average=0.004

For data in more acid solutions ferricyanide could not be readily employed owing to interference by the ferri-ferrocyanide system. Chlorine-water was out of the question, because of excessive interfering side reactions. Ceric sulphate was tried and found to be of considerable utility, although the results obtainable with toluidine indophenol were not of the highest precision.

Preparation of ceric sulphate solution.—The method proposed by Willard and Young (1928) was used: 8.62 gm. CeO_2 were heated for 1 hour with 26.6 c. c. concentrated H_2SO_4 . The mixture was diluted to 500 c. c. with water and heated 1 hour longer, after which the solution was allowed to cool and settle out. A small amount of undissolved residue remained behind. This orange-yellow stock solution is apparently stable indefinitely. Its oxidizing strength was 0.075 N. This was determined indirectly by a titration of leuco-toluidine indophenol which had in turn been titrated with an exactly prepared ferricyanide solution.

The stock ceric sulphate solution contained 1.8 N H_2SO_4 to prevent hydrolysis. For titration, this stock was diluted first with water to 0.0021 N $Ce(SO_4)_2$ and 0.05 N acid and then with suitable buffer to a final concentration of 0.00021 N $Ce(SO_4)_2$ and 0.005 N acid. A slow precipitation of the hydroxide occurred upon considerable dilution, but this was never noticeable during the short periods required to complete the titrations.

Effect of acidity of ceric sulphate solution on electrode potentials.—The titrating solution contained 0.005 N sulphuric acid at a maximum. When 22 c. c. was used to oxidize the reductant, the total amount of acid added to the buffered indophenol solution was

0.00011 mole. In the experiments to be cited presently, the more weakly buffered acetate buffer No. 3 contained 0.115 M total acetate and 87 per cent sodium acetate, and 0.075 M total acetate at final dilution. Using the interpolated values of $-\log \gamma$ at 18° as given for the acetate system by Cohn, Heyroth, and Menkin (1928) in the equation (*cf.* Clark, 1928, p. 219)—

$$\text{pH} = 4.73 + \log \frac{[\text{acetate}]}{[\text{acetic acid}]} + \log \gamma$$

there is obtained for this buffer the pH value of 5.473 without taking account of temperature corrections or possible slight effects of dissolved indophenol. (The value actually found by hydrogen electrode measurement at 30° is pH 5.446).

The addition of 0.00011 mole strong acid to 50 c. c. of this buffer would alter the ratio of acetate to acetic acid, and the calculated pH of the mixture would be 5.410. The difference between this value and 5.473 calculated above corresponds to a *correction* of $-.0042$ volt for the maximum amount of acid added when the end of the titration is reached. If this correction is distributed proportionately through the titration in acetate buffer No. 3 (see Table 14), it is found that, although the major amount of the deviations is eliminated, there still remains a residual progressive divergence unaccounted for. In the case of acetate buffer No. 1 (Table 15) the calculated maximum acidity correction for cerium solution added is only 0.0011 volt, while the maximum deviation is 0.0066 volt. It is clear that we are dealing with a secondary effect which becomes more appreciable the higher the acidity.

In view of the uncertainties involved, we have resorted to the so-called " β correction" (see paper V), an empirically determined correction which includes the effects of changes in acidity. Any change in potential due to progressive change in acidity and progressive decomposition of oxidant during a titration will give a series of deviations which are practically linear for the significant part of the titration curve. It is assumed that if such a deviation line on an E'_0 : per cent reduction diagram is projected back to 0 per cent reduction it will intersect the E'_0 axis close to the true E'_0 value. With each increment of oxidation, the increment of E'_0 read along this projected deviation line has been considered the correction to apply. This is the " β correction" noted in following tables.

At the higher acidities reasonably acceptable titration curves are obtainable only by very rapid manipulations, and the deviations noted are greater the more acid the buffer. The effect is as if the

dye oxidant were being gradually removed from action and a corresponding amount of ceric sulphate were used up in a secondary process. Indeed, one can calculate an E'_0 value close to that obtained by the " β correction" by assuming the true end-point to be overstepped by 1.5 c. c. of ceric sulphate in the experiments cited. Except for the inferences stated, there is no substantial experimental proof to establish the validity of the above treatment. It seems plausible and reasonable. At any rate it yields a substantially consistent basis for a preliminary outline of the system.

Titrations with ceric sulphate.—Citrate buffers can not be employed, because of interaction with the ceric sulphate. In acetates, the ceric salt seems to maintain its oxidizing power unaltered for several hours at least. Benrath and Ruhland (1920) report that acetic acid is apparently not attacked by ceric sulphate in the dark, but is extensively oxidized in six days in direct sunlight. Table 14 gives the results of a titration in acetate buffer of pH 5.446. The duplicate electrodes always agreed with each other, but were somewhat sluggish near the end-point, which was not very sharp. The deviations of electrode potential are shown under the heading " β correction." Table 15 gives the results of another similar titration in acetate buffer of pH 4.598. It was found necessary to work more rapidly than at pH 5.446 in order to get a satisfactory titration. Table 16 gives the results of a titration in sulphate buffer of pH 2.375 which took six minutes to complete.

TABLE 14.—*Titration of leuco-toluidine indophenol with approx. 0.0002 N ceric sulphate in acetate buffer 3¹, pH 5.446*

[Titration time, 41 minutes]

Ce (SO ₄) ₂ c. c.	Oxidation %	0.03006 × log $\frac{[S_1]}{[S_0]}$	E _h	β correc- tion	E'.
2	9.05	+0.0301	+0.2023	-0.0005	+0.3219
4	18.10	.0197	.3040	-.0010	.3227
5	22.63	.0161	.3081	-.0012	.3230
6	27.15	.0129	.3115	-.0014	.3230
7	31.68	.0100	.3146	-.0016	.3230
8	36.20	.0074	.3175	-.0019	.3230
9	40.73	.0049	.3203	-.0022	.3230
10	45.25	.0025	.3229	-.0024	.3230
11	49.78	+.0001	.3254	-.0026	.3229
12	54.30	-.0023	.3280	-.0028	.3229
13	58.83	-.0047	.3307	-.0030	.3230
14	63.35	-.0071	.3335	-.0032	.3232
15	67.88	-.0098	.3363	-.0035	.3230
16	72.40	-.0126	.3395	-.0038	.3231
17	76.93	-.0157	.3430	-.0041	.3232
18	81.45	-.0193	.3469	-.0043	.3233
19	85.98	-.0237	.3516	-.0045	.3234
20	90.50	-.0294	.3582	-.0047	.3241
22.1	100.00				

Weighted average = 0.323

¹ Composition of acetate buffer No. 3: 100 c. c. M NaOH + 115 c. c. M acetic acid + 785 c. c. water.

TABLE 15.—*Titration of leuco-toluidine indophenol with approx. 0.0002 N ceric sulphate in acetate buffer 1¹, pH 4.598*

[Titration time, 18 minutes]

Ce(SO ₄) ₂ c. c.	Oxidation %	$0.03006 \times \log \frac{[S_r]}{[S_o]}$	E _h	β correction	E'°
2	9.09	+0.0301	0.3538	-0.0006	0.3833
4	18.18	.0196	.3664	-.0013	.3847
6	27.27	.0128	.3745	-.0018	.3855
8	36.36	.0073	.3809	-.0025	.3857
9	40.91	.0048	.3837	-.0028	.3857
10	45.45	.0024	.3863	-.0031	.3856
11	50.00	.0000	.3889	-.0034	.3855
12	54.54	-.0024	.3917	-.0037	.3856
14	63.63	-.0073	.3975	-.0044	.3858
16	72.72	-.0128	.4041	-.0050	.3863
18	81.81	-.0196	.4129	-.0057	.3876
20	90.90	-.0301	.4268	-.0066	.3901
22	100.00				

Weighted average=0.386

¹ Composition of acetate buffer No. 1: 100 c. c. M NaOH+200 c. c. M acetic acid+700 c. c. water.TABLE 16.—*Titration of leuco-toluidine indophenol with approx. 0.0002 N ceric sulphate in sulphate buffer 3¹, pH 2.375*

[Titration time, 6 minutes]

Ce(SO ₄) ₂ c. c.	Oxidation %	$0.03006 \times \log \frac{[S_r]}{[S_o]}$	E _h	β correction	E'°
4	18.18	+0.0196	0.5093	-0.0011	0.5278
5	36.36	.0073	.5274	-.0021	.5326
9	40.91	.0048	.5301	-.0023	.5326
10	45.45	.0024	.5326	-.0025	.5325
11	50.00	.0000	.5354	-.0028	.5326
12	54.54	-.0024	.5381	-.0031	.5326
14	63.63	-.0073	.5451	-.0036	.5342
16	81.81	-.0196	.5638	-.0045	.5397
20	90.90	-.0301	.5802	-.0050	.5451
22	100.00				

Weighted average=0.533

¹ Composition of sulphate buffer No. 3: 250 c. c. M/10 Na₂SO₄+30 c. c. M/10 H₂SO₄+220 c. c. water.

Relation of E'° to pH.—We have depended largely on suitable titrations to establish the values of E'° at different points on the pH scale. A number of intermediate points in the neutral and alkaline range were determined by means of a fixed mixture of oxidant and reductant, but in the acid region decompositions were too rapid to give acceptable values.

The fixed mixture was prepared to contain 36.9% of oxidant by adding ceric sulphate to a solution of the reductant. Rapid drifts in potential occurred when the mixture was added to the buffers, and initial values were selected as the most probable. The results are shown in Table 17, the values obtained with the fixed mixture being indicated by superscripts.

The E'°:pH curve is shown in Figure 2 (solid circles), where the toluidine indophenol system is seen to superpose that of phenol blue

except in the extreme alkaline region and between pH 4 and pH 6. In the alkaline zone the curve has a definite bend at pH 10.8 from a 0.03 to a 0.06 slope; and in the acid region there is a shift in the position of the bends corresponding to differences in the dissociation constants of the two homologous systems.

TABLE 17.—*Toluidine indophenol. Relation of E' to pH*

Buffer No.	pH	E' (found)	E' (calc.) ¹	Devia- tion
3 Sulphate.....	2.375	+0.533	+0.534	-0.001
1 Acetate.....	4.598	.386	.390	-.004
3 Acetate.....	5.446	.323	.326	-.003
14.....	6.465	.255	.257	-.002
15.....	6.73	.240	.240	.000
16.....	7.426	.197	.198	-.001
17.....	7.79	.179	.176	+.003
22.....	8.649	.122	.125	-.003
23½.....	9.584	.072	.072	.000
24½.....	11.04	.004	.003	+.001
24½.....	11.04	+.003	+.003	.000
26.....	11.36	-.014	-.015	+.001
28.....	12.25	-.063	-.066	+.003
30.....	12.57	-.084	-.085	+.001

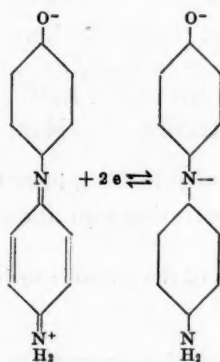
¹ Calculated by means of equation (12) using—

$$\begin{array}{ll}
 E'_{\text{pH } 0} = +0.6772 & \\
 K_0 = 3.98 \times 10^{-4} & \text{p}K_0 = 4.40 \\
 K_{\text{ob}1} = 1.18 \times 10^{-3} & \text{p}K_{\text{ob}1} = 2.93 \\
 K_r = 1.26 \times 10^{-10} & \text{p}K_r = 9.9 \\
 K_{r2} = 3.16 \times 10^{-4} & \text{p}K_{r2} = 5.5 \\
 K_w = 1.86 \times 10^{-14} & \text{p}K_w = 13.73
 \end{array}$$

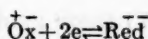
² Obtained with a fixed mixture, the remaining values were determined by titrations.

Electrode Equations

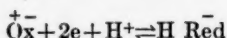
A consideration of the significant properties of the amino indophenol systems leaves hardly a doubt that the fundamental oxidation-reduction reaction is essentially between the amphoteric oxidant and the reductant, viz:



or



If there be some who find difficulty in conceding an electronic interchange in organic oxidation-reductions, it may be stated that introduction of an electron-carrier will not alter the formulation in any important way. It may also be said parenthetically that writing the reaction as follows



to account for the circumstance that the bridging nitrogen in the reductant fixes a hydrogen is formally identical with the first equation. The electrode equation for the reaction may, therefore, be written (for 30° C.)

$$E_h = C - 0.03006 \log \frac{[\bar{\text{Red}}]}{[\overset{+}{\text{Ox}}]} \quad (1)$$

Inasmuch as the toluidine indophenol system gives the most complete picture experimentally, we shall use it for the derivation of the type working equation and then make such modifications as necessary to describe the other two more complex systems.

The total concentration of reductant in its various forms is

$$[S_r] = [\bar{\text{Red}}] + [\text{H } \bar{\text{Red}}] + [\text{H}_2 \text{ Red}] + [\text{H}_3 \text{ Red}^+] \quad (2)$$

and the dissociation constants are defined by the equilibrium equations:

$$\frac{[\bar{\text{Red}}][\text{H}^+]}{[\text{H } \bar{\text{Red}}]} = K_{rbl} \text{ (binding of hydron at bridging nitrogen)} \quad (3)$$

$$\frac{[\text{H } \bar{\text{Red}}][\text{H}^+]}{[\text{H}_2 \text{ Red}]} = K_r \text{ (dissociation of phenolic hydron of reductant)} \quad (4)$$

$$\frac{[\text{H}_2 \text{ Red}][\text{H}^+]}{[\text{H}_3 \text{ Red}^+]} = K_{r2} \text{ (equivalent to association of H}^+ \text{ at amino group of reductant)} \quad (5)$$

By substituting (3), (4) and (5) in (2) there is obtained

$$[\bar{\text{Red}}] = \frac{[S_r]K_rK_{r2}K_{rbl}}{K_rK_{r2}K_{rbl} + K_rK_{r2}[\text{H}^+] + K_{r2}[\text{H}^+]^2 + [\text{H}^+]^3} \quad (6)$$

Similarly, the total concentration of oxidant may be written

$$[S_o] = [\overset{+}{\text{Ox}}] + [\text{HOx}^+] + [\text{OxOH}^-] \quad (7)$$

and the corresponding dissociation equilibria are

$$\frac{[\overset{+}{\text{Ox}}][\text{H}^+]}{[\text{HOx}^+]} = K_o \text{ (dissociation of the phenolic hydron in the oxidant)} \quad (8)$$

$$\frac{[\overset{+}{\text{Ox}}][\text{OH}^-]}{[\text{OxOH}^-]} = K_{obi} \text{ (dissociation of polar group of oxidant)} \quad (9)$$

Substituting (8) and (9) in (7) there is obtained

$$[\overset{+}{\text{Ox}}] = \frac{[S_o]K_oK_{obi}[\text{H}^+]}{K_oK_w + K_oK_{obi}[\text{H}^+] + K_{obi}[\text{H}^+]^2} \quad (10)$$

The electrode equation (1) then becomes

$$E_h = C - 0.03006 \log \frac{[S_r]}{[S_o]} \cdot \frac{K_r K_{r2} K_{rb1}}{K_o K_{obl}} \cdot \frac{1}{[H^+]} \cdot \frac{K_o K_w + K_o K_{obl} [H^+] + K_{obl} [H^+]^2}{K_r K_{r2} K_{rb1} + K_r K_{r2} [H^+] + K_{r2} [H^+]^2 + [H^+]^3} \quad (11)$$

Since K_{rb1} is negligibly small, the product in which it occurs in equation (11) is negligible in the sum. Then assembling constants under E_o and simplifying as indicated we have the following general electrode equation for *toluidine indophenol*:

$$E_h = E_o - 0.03006 \log \frac{[S_r]}{[S_o]} - 0.0601 \text{ pH} - 0.03006 \log \left(\frac{K_o K_w}{K_{obl}} + K_o [H^+] + [H^+]^2 \right) + 0.03006 \log (K_r K_{r2} + K_{r2} [H^+] + [H^+]^2) \quad (12)$$

When $[S_r] = [S_o]$, the second term in (12) drops out and E_h becomes E'_o , the potential of an equimolecular mixture of oxidant and reductant.

The formulation of the electrode equation of the *phenol blue system* is the same as the above except that we postulate the polar dimethylamino group to be such a strong base that it is completely ionized throughout the pH range studied. Therefore the term $\frac{K_o K_w}{K_{obl}}$ in the fourth member of equation (12) becomes negligibly small in the sum and the equation for phenol blue reduces to

$$E'_o = E_o - 0.03006 \text{ pH} - 0.03006 \log (K_o + [H^+]) + 0.03006 \log (K_r K_{r2} + K_{r2} [H^+] + [H^+]^2) \quad (13)$$

In the *m*-toluylene diamine indophenol system, account has to be taken of the second amino group. Its dissociation in the reductant is represented by

$$\frac{[H^+] [H_3 \text{ Red}^+]}{[H_4 \text{ Red}^{++}]} = K_{r3} \text{ (equivalent to association of } H^+) \quad (14)$$

In the oxidant, this amino group is so weak that its dissociation is not detectable in the pH range studied, and may therefore be neglected for present purposes. The electrode equation for *m*-toluylene diamine indophenol, therefore, reduces to

$$E'_o = E_o - 0.0601 \text{ pH} - 0.03006 \log \left(\frac{K_o K_w}{K_{obl}} + K_o [H^+] + [H^+]^2 \right) + 0.03006 \log (K_r K_{r2} K_{r3} + K_{r2} K_{r3} [H^+] + K_{r3} [H^+]^2 + [H^+]^3) \quad (15)$$

A comparison of the above equations with those for the indamines (see paper XI) reveals the interesting fact that the characteristics of the toluidine indophenol and the Bindschedlers' green systems are described by identical equations, although the basic formulations were necessarily different. Toluylene blue and *m*-toluylene diamine indophenol are likewise defined by identical equations.

* It should be pointed out that exactly the same electrode equation can be derived by assuming a phenolic group to be nonexistent in the oxidant and that the detected dissociation belongs to the nonpolar dimethylamino group. This entails certain properties which are inconsistent with a large body of facts relating to compounds of the type under consideration. We need cite here only the analogy with the related *o*-toluidine indophenol.

Dissociations

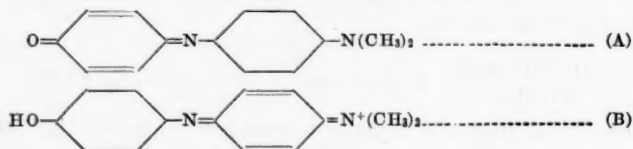
A satisfactory allocation of dissociation constants can be made from analysis of the $E'_{\circ} : \text{pH}$ curves, together with the aid of certain reasonable assumptions based on the properties of the compounds. Dissociations in the oxidant can be separated from those belonging to the reductant by the changes in slope of the $E'_{\circ} : \text{pH}$ curve as has been indicated by Hall, Preisler, and Cohen (see paper XIV). Thus,

when the change in slope, defining slope as $\frac{-dE}{dpH}$, is negative, the dissociation causing the change is assignable to the reductant; when the change is positive, the corresponding dissociation belongs to the oxidant. These can also be confirmed by independent acid-base measurements of the reductant and oxidant respectively.

In the present study dependence was placed upon the oxidation-reduction measurements for establishing the final values of these constants; but they were confirmed, where possible, by rough acid-base measurements made in the examination of the general chemical properties of the systems.

In the case of the oxidant of each of the systems under consideration, it is necessary first to decide as to which is the predominant tautomer. In phenol blue, for example, the quinonic form permits only one dissociation whereas the polar form permits two.

It can be shown formalistically that in aqueous solution the quinonic form, (A), is tautomeric with the polar form, (B)



$$\text{Let } \frac{[\text{Ox H}^+][\text{OH}^-]}{[\text{HO Ox H}]} = K_p = \frac{[\text{OxH}^+] K_w}{[\text{HO Ox H}][\text{H}^+]} \dots\dots\dots (16)$$

represent the dissociation of the polar group in (B), and

$$\frac{[\text{HO Ox}^-][\text{H}^+]}{[\text{HO Ox H}]} = K_2 \dots\dots\dots (17)$$

the dissociation of the phenolic hydron. The basic dissociation equilibrium of form (A) may be written

$$\frac{[\text{Ox}][\text{H}^+]}{[\text{OxH}^+]} = K_b \dots\dots\dots (18)$$

and the hydrolysis equilibrium is

$$\frac{[\text{Ox}][\text{H}_2\text{O}]}{[\text{HO Ox H}]} = K'_h$$

or, considering the water concentration a constant compared to the concentration of the other two components,

$$\frac{[\text{Ox}]}{[\text{HO Ox H}]} = K_h \dots\dots\dots (19)$$

Then (18) may be written

$$\frac{K_b[\text{HO O}_x\text{H}][\text{H}^+]}{[\text{O}_x\text{H}^+]} = K_b$$

or

$$\frac{[\text{O}_x\text{H}^+]}{[\text{HO O}_x\text{H}][\text{H}^+]} = \frac{K_b}{K_w} \text{-----} (20)$$

which is identical with $\frac{K_p}{K_w}$ in (16).

As it happens, only one dissociation is detectable in the oxidant of the phenol blue system, and a conclusion from this fact alone is not permissible. We can, however, draw on collateral chemical evidence to frame a satisfactory interpretation. The synthesis and study of toluidine indophenol was undertaken mainly to furnish additional evidence on this point. As we shall see, the oxidant of this system has two detectable dissociations—one belonging to the phenolic group and the other to a relatively *weak* polar amino group. Consequently the conclusion becomes inevitable that in phenol blue the dimethylamino group is so very strong that its dissociation is not detectable in the pH range studied, and that the observed dissociation, pK 4.85, must be assigned to the phenolic group. This interpretation is also consistent with the evidence obtained from the methylene blue (see Paper VIII), the *p*-phenylene diamine (Paper IX), and the Bind-schedler's green (Paper XI) systems.

As to the dissociations in the reductants, the allocation of constants is not as yet so clearly fixed. We shall continue with the reasonable assumption made in the case of the indophenols and indamines, namely, that one hydrogen attaches to the bridging nitrogen so firmly as not to dissociate within ordinary pH ranges. Then from the chemistry of the compounds and from analogy with the indophenols and indamines previously studied, an allocation of the detectable dissociations in the reductant can be made which gives a consistent picture and satisfies all present requirements of formulation.

Phenol blue system.—A fresh solution of the oxidant was introduced into Clark and Lubs' buffers from pH 1.2 to 10.0. In the acid range the color was purple, and in the alkaline it was deep blue, the transition occurring between pH 4 and 5, corresponding to the dissociation of the phenolic hydron in the oxidant.

A spectrophotometric determination of the apparent dissociation constant was made at laboratory temperature, 25° C., using a stock solution containing 0.0005 M phenol blue chloride plus 0.0005 M HCl. For the measurement of the absorption at $\lambda = 660 \text{ m}\mu$, there was used a mixture of 1 c. c. phenol blue solution in 50 c. c. buffer. The results are shown in Table 18. Values obtained at both ends of the dissociation curve diverged considerably and were rejected arbitrarily in the calculation of the average. This value, 4.84, compares well with $\text{p}K_o = 4.85$ obtained from the oxidation-reduction measurements.

The dissociation of the polar dimethylamino group is assumed to be too high to measure. It is certainly not detectable colorimetrically down to an alkalinity of normal NaOH.

TABLE 18.—*Phenol blue. Spectrophotometric determination of pK_o . Absorption maximum at 660 m μ*

pH	Transmittancy %	$-\log T$	a	$\log \frac{a}{1-a}$	pK_o
7.99	5.3	1.276	1.0000	-----	-----
5.81	9.1	1.041	.8158	0.646	(5.17)
5.40	11.9	0.924	.7249	.421	4.98
5.00	17.0	.770	.6034	.182	4.82
4.87	21.5	.668	.5235	+.041	4.83
4.46	35.1	.455	.3566	-.256	4.72
3.84	41.9	.378	.2962	-.375	(4.22)

Average = 4.84

In the E'_o :pH curve, Figure 2, we find two detectable dissociations in the reductant—one near pH 9.9 and the other near pH 6.0. The first corresponds in magnitude with those of phenolic groups in the reduced indophenols; hence we may properly assign this dissociation, $pK_r = 9.88$, to the phenolic group in leuco-phenol blue. The second is therefore allocated to the reductant's dimethylamino group, and its value, $pK_{r2} = 5.96$, represents that of a base of medium strength, as would be expected. (K_{r1} , the dissociation of the hydrogen on the bridging nitrogen atom, is considered negligibly small.)

Toluidine indophenol system.—The E'_o :pH curve of this system superposes that of phenol blue (see Figure 2) with certain deviations due to differences in the characteristic constants.

There are two detectable dissociations in the oxidant—one near pH 10.8 and the other near pH 4.4. The first clearly represents the dissociation of a hydroxyl group from the relatively weak polar group, $=NH_2^+$, in toluidine indophenol. Its value at 30° is

$$pK_w - pH = 13.73 - 10.8 = 2.93 = pK_{ob1}$$

The second dissociation in the oxidant is that of the hydron in the phenolic group with the value $pK_o = 4.4$. The marked effect of the polar amino group in increasing the dissociation of the phenolic hydron is worthy of note.

In the reductant there are three possible dissociations. That due to the hydrogen on the bridging nitrogen, K_{r1} , is considered negligibly small and is ignored. The one occurring near pH 9.9 is of the same general magnitude as those of the phenolic hydrons in the reduced indophenols, and we therefore assign this, likewise, to the phenolic hydron in leuco-toluidine indophenol, $pK_r = 9.9$. The remaining detectable dissociation occurs near pH 5.5, and it is assigned to the

amino group. $pK_{r2} = 5.5$ corresponds to the association of H^+ to this amino group in the reductant.

m-Toluylene diamine indophenol system.—The distribution of dissociations in this system is similar to that in *o*-toluidine indophenol, with the added complication of another amino group.

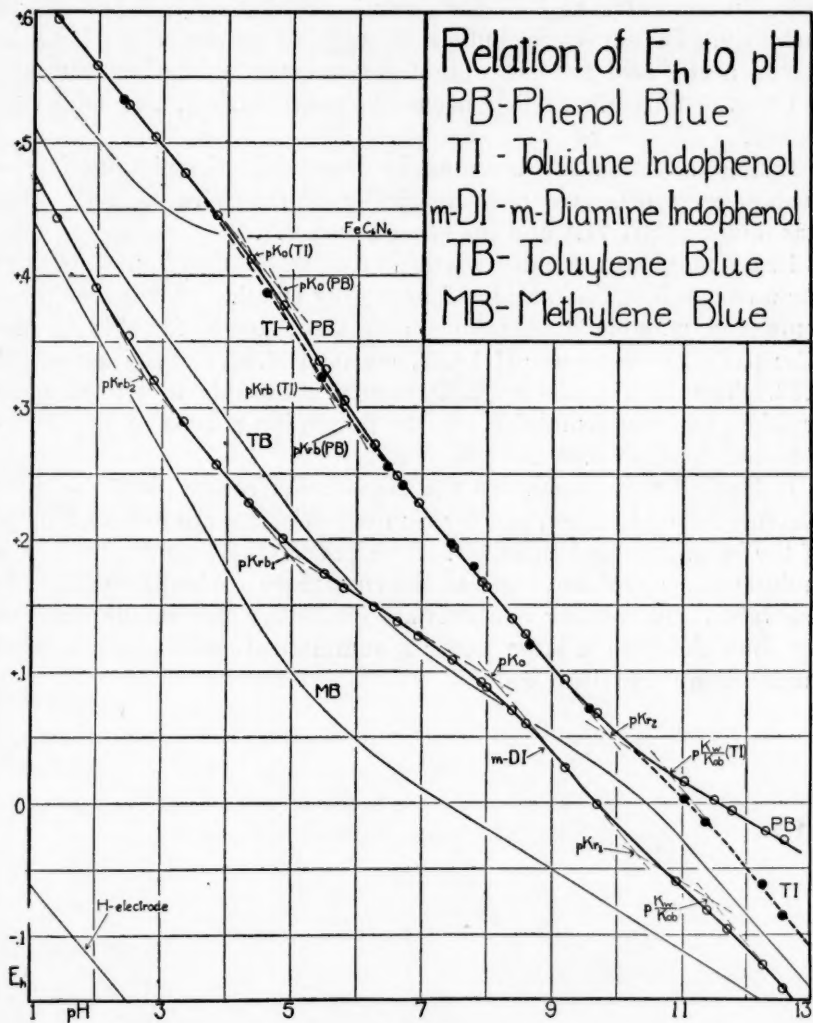


FIGURE 2

In the oxidant three dissociations are possible and only two are detectable in the pH range studied. The one occurring at pH 11.42 is undoubtedly due to a polar amino group and its value at 30° is $13.73 - 11.42 = 2.31 = pK_{obl}$. The second dissociation, $pK_o = 8.07$, is allocated to the phenolic hydron of the oxidant. This decision is based on the known effects of positive substituents upon phenolic dissociation in the simple indophenol molecule. If it be granted

that the allocation of the detectable dissociations in the oxidant is correct, then we must conclude that the remaining amino group is such a weak base that its dissociation is negligible in the pH range studied. This weak dissociation can be revealed colorimetrically. The color of the oxidant at ordinary acidities up to 2 molar HCl is red. In concentrated HCl the color is purple, but it fades almost instantly. In superacid buffers of varying amounts of H_2SO_4 in glacial acetic acid there is obtained a stepwise gradation from the red to the purple. Fading occurs in these buffers, but relatively slowly.

Incidentally, the two more easily detectable dissociations in the oxidant were measured colorimetrically by the Salm method. One was found at pH 11.4 and the other at pH 8.1.

In the reductant, the dissociation (K_{r1}) of hydrion from the bridging nitrogen is again considered negligibly small. This leaves three remaining possible dissociations and three are detectable in the E'_0 : pH curve—one at pH 10.32, one at pH 4.96, and the last at pH 2.72. The first, $pK_{r1}=10.32$, is clearly assignable to the phenolic hydrion, and the remaining two to the amino groups of the leuco-compound, $pK_{r2}=4.96$ and $pK_{r3}=2.72$.

In Table 19 are assembled the dissociation constants of the three systems here described, and for comparison there are included those of the indamines and thiazines. The dissociations applicable to the amino groups are converted to the customary *basic* dissociations in this table. Interesting relations are evident in this tabulation, but we shall defer to a later paper a summarization of the effects of amino group substitutions.

TABLE 19.—Basic and acidic ionization constants, pH values of bends in E' : pH curves (corresponding to pK_a values) and characteristic potentials at pH 0

Group	Symbol	Methylene blue		Lauth's violet		Bindschedler's green		Tolylene blue	
		Value of constant	Bend at pH	Value of constant	Bend at pH	Value of constant	Bend at pH	Value of constant	Bend at pH
BASIC	K_{abl} (K _a) ¹	Too high to measure.	None.	1.88×10 ⁻¹	11.0	(3×10 ⁻⁹) [?]	(1.2) [?]	5.63×10 ⁻⁴	10.48
	K_{oa} (K _a) ¹	Too low to measure.	None.	Too low to measure.	None.	3.47×10 ⁻¹¹	3.27	1.19×10 ⁻⁹	3.80
	K_{oa} (K _a) ¹	None.	None.	None.	None.	None.	None.	Too low to measure.	None.
	K_{ra} (K _a) ¹	Fixes H ⁺	None.	Fixes H ⁺	None.	Fixes H ⁺	None.	Fixes H ⁺	None.
	K_{ra} (K _a) ¹	1.35×10 ⁻⁴	5.85	3.8×10 ⁻⁴	5.30	5.37×10 ⁻⁴	6.46	6.88×10 ⁻⁴	6.46
	K_{ra} (K _a) ¹	0.5×10 ⁻¹⁰	4.52	4.5×10 ⁻¹⁰	4.38	2.35×10 ⁻⁴	8.10	4.72×10 ⁻¹⁰	4.40
	K_{ra} (K _a) ¹	None.	None.	None.	None.	None.	None.	2.60×10 ⁻¹³	2.14
Characteristic potential		0.532	0.563	0.563	0.563	0.680	0.680	0.601	0.601
ACIDIC	K_{abl} (K _a) ¹	1.18×10 ⁻⁴	10.8	10.8	10.8	Too high to measure.	None.	4.898×10 ⁻⁴	11.42
	K_{oa} (K _a) ¹	None.	None.	None.	None.	None.	None.	Negligibly small	<0
	K_{ra} (K _a) ¹	Fixes H ⁺	None.	Fixes H ⁺	None.	Fixes H ⁺	None.	Fixes H ⁺	None.
	K_{ra} (K _a) ¹	5.82×10 ⁻⁴	5.5	1.679×10 ⁻⁴	5.96	1.679×10 ⁻⁴	5.96	1.679×10 ⁻⁴	4.96
	K_{ra} (K _a) ¹	None.	None.	None.	None.	None.	None.	9.659×10 ⁻¹³	2.72
	K_{ra} (K _a) ¹	3.98×10 ⁻⁴	4.4	1.413×10 ⁻⁴	4.85	1.413×10 ⁻⁴	4.85	8.511×10 ⁻⁴	8.07
	K_{ra} (K _a) ¹	1.26×10 ⁻¹⁰	9.9	1.313×10 ⁻¹⁰	9.88	1.313×10 ⁻¹¹	10.32	4.786×10 ⁻¹¹	10.32
Characteristic potential		+0.677	+	+0.677	+	+0.677	+	+0.5674	+

¹ $K_{\text{a}} = \frac{K_{\text{r}}}{K_{\text{ox}}}$, etc.

Summary and Conclusions

The equilibrium potentials of the amino indophenols, phenol blue *m*-toluyene diamine indophenol, *o*-toluidine indophenol, each in mixture with its leuco-product, were determined potentiometrically at 30° C. in buffers of various pH values.

For the phenol blue system the rationally developed electrode equation found to be applicable is

$$E_h = E_o - \frac{RT}{2F} \ln \frac{[S_r]}{[S_o]} - \frac{RT}{2F} \ln \frac{K_o + [H^+]}{[H^+](K_r K_{r2} + K_{r2}[H^+] + [H^+]^2)}$$

For the *o*-toluidine indophenol system the equation is the same except that the last term is

$$- \frac{RT}{2F} \ln \frac{\frac{K_o K_w}{K_{ob1}} + K_o [H^+] + [H^+]^2}{[H^+]^2 (K_r K_{r2} + K_{r2}[H^+] + [H^+]^2)}$$

For the *m*-toluyene diamine indophenol system the equation is also the same except that the last term reads

$$- \frac{RT}{2F} \ln \frac{\frac{K_o K_w}{K_{ob1}} + K_o [H^+] + [H^+]^2}{[H^+]^2 (K_r K_{r2} K_{r3} + K_{r2} K_{r3} [H^+] + K_{r3} [H^+]^2 + [H^+]^3)}$$

In these equations, E_h is the potential difference between electrode and solution, E_o is a characteristic constant, and $[S_o]$ and $[S_r]$ are the concentrations of total oxidant and total reductant, respectively. The several dissociation constants for each system are defined as follows:

K_o = dissociation constant of the phenolic hydrion of the oxidant.

K_{ob1} = dissociation constant of the polar amino group of the oxidant.

K_{o2} = dissociation constant of the hydrion from the nonpolar amino group of the oxidant.

K_r = dissociation constant of the phenolic hydrion of the reductant.

K_{r2} = dissociation constant of the hydrion from the first amino group in the reductant.

K_{r3} = dissociation constant of the hydrion from the second amino group in the reductant.

K_w = dissociation product of water.

One hydrogen in the reductant is considered fixed to the bridging nitrogen.

In phenol blue, the polar dimethylamino group is so strongly basic that its salt is completely dissociated throughout the pH range studied; on the other hand, the polar amino group in each of the other two oxidants has a dissociation sufficiently low to be detectable experimentally. In the *o*-toluidine indophenol system four dissociations are possible and four are found; in *m*-toluyene diamine indophenol the non-polar amino group in the oxidant is such a weak base that its dissociation is negligible in the pH range studied. The values of the various constants are given in Table 20. Those of the oxidants were confirmed by colorimetric and spectrophotometric

measurements. The postulated weak dissociation of the non-polar amino group in *m*-toluylene diamine indophenol was revealed by the employment of superacid buffers.

TABLE 20.—Values of constants of the systems

Constant	<i>o</i> -Toluidine indophenol		Phenol blue		<i>m</i> -Toluylene diamine indophenol	
	K_{acid}	Corresponding to basic constant	K_{acid}	Corresponding to basic constant	K_{acid}	Corresponding to basic constant
K_o	3.98×10^{-5}		1.413×10^{-5}		8.511×10^{-9}	
K_{obl}		1.18×10^{-3}		Very high.		4.898×10^{-3}
K_{o2}	None.			None.	Very low.	
K_r	1.26×10^{-10}		1.318×10^{-10}		4.786×10^{-11}	
K_{r2}	3.16×10^{-6}	5.82×10^{-3}	1.096×10^{-6}	1.679×10^{-3}	1.096×10^{-6}	1.679×10^{-3}
K_{r3}	None.			None.	1.905×10^{-3}	9.659×10^{-13}
K_w	1.86×10^{-14}					
$E'_{pH 0}$	+0.677		+0.677		+0.5674	

The oxidant, *o*-toluidine indophenol, is extremely unstable even in mildly acid solutions. In phenol blue, the polar dimethylamino group is readily replaceable by oxygen to form indophenol, a reaction which proceeds more rapidly the more alkaline the solution. Another decomposition occurring in acid solution is the breakdown to benzoquinone and dimethyl-*p*-phenylene diamine. The quinone was experimentally isolated and identified. The oxidant, *m*-toluylene diamine indophenol, exhibits greater stability than the other two studied. On the other hand, the reductants in all cases are vastly more stable and have yielded more satisfactory experimental results.

In connection with the stability of the compounds there is an important point that deserves emphasis. The dry leuco-compounds are not only indefinitely stable but can be subjected to severe experimental manipulations with impunity. In aqueous solutions protected from air the reductants may be boiled for a short while without causing any detectable changes in the electromotive properties of the compounds. There are evidences, inconclusive as yet, that light may affect the reductants to some extent. On the other hand the oxidants, although apparently stable when dry, undergo serious decompositions in aqueous solutions. This defect must be guarded against or taken into consideration, especially in connection with biological applications. Of the three systems reported here, *m*-toluylene diamine indophenol is the only one apparently stable enough to be suitable for indicator purposes. The toluidine system appears useless as an indicator, although it was necessary to study it for theoretical reasons. Phenol blue has a limited utility and has been employed in micro-injections by Cohen, Chambers, and Reznikoff (1927-8).

These are the first amphoteric, amino indophenols to be characterized potentiometrically. Their equilibrium potentials lie in the same

general range covered by the simple indophenols hitherto described. The extreme instability of *o*-toluidine indophenol eliminates it as an indicator of oxidation-reduction. Phenol blue can be so used in a rough way, but decomposition to phenol indophenol renders interpretations precarious. *m*-Toluylene diamine indophenol is relatively much more stable and is acceptable as a suitable indicator. Its distinctive properties as an amphoteric dye should be useful in the study of the effects of acidic and basic dyes as indicators of biological oxidation-reductions.

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1. The first part of the paper discusses the importance of the study of the history of the United States. It is argued that a knowledge of the past is essential for a full understanding of the present and for the development of a sound policy for the future.

2. The second part of the paper deals with the question of the rights of the individual. It is shown that the rights of the individual are not absolute, but are subject to the needs of the community. The author argues that the state has a duty to protect the rights of the individual, but also to restrict them when necessary for the good of the community.

3. The third part of the paper discusses the question of the rights of the state. It is shown that the rights of the state are also not absolute, but are subject to the needs of the individual. The author argues that the state has a duty to protect the rights of the individual, but also to restrict them when necessary for the good of the community.

4. The fourth part of the paper discusses the question of the rights of the community. It is shown that the rights of the community are also not absolute, but are subject to the needs of the individual and the state. The author argues that the community has a duty to protect the rights of the individual and the state, but also to restrict them when necessary for the good of the community.

5. The fifth part of the paper discusses the question of the rights of the world. It is shown that the rights of the world are also not absolute, but are subject to the needs of the individual, the state, and the community. The author argues that the world has a duty to protect the rights of the individual, the state, and the community, but also to restrict them when necessary for the good of the world.

